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ABSTRACT

Volume 2 in a projected series of four annotated bibliographies contains 433 entries published from 1968 through 1972 on prevention and early care for young children (primarily under two years of age) afflicted with cerebral palsy or related developmental disabilities. Arranged alphabetically by author's name, listings usually include title, source, volume number and pagination, publication date, and an abstract of the document's contents. Also included are author and subject indexes. (LH)

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CEREBRAL PALSY AND RELATED DEVELOPMENTAL DISABILITIES--PREVENTION AND EARLY CARE

An Annotated Bibliography

Volume II

1972
(Includes Items Published 1968-1972)

Compiled by

RAYMOND R. REMBOLT, M.D., and BETH ROTH, M.A.

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FOREWORD

Cerebral Palsy and Related Developmental Disabilities--Prevention and Early Care: An Annotated Bibliography, compiled by Raymond R. Rembolt, M.D., and Beth Roth, was sponsored by the United Cerebral Palsy Associations, Inc. It consists of three volumes: Volume I (1971) includes items published from before 1964 through 1971; Volume II (1972) includes items published 1968-1972; and Volume III (1973) includes items published in 1972 and 1973. The project was supported partly by the Association and partly by the UCPA "Nationally Organized Collaborative Project to Provide Comprehensive Services for Atypical Infants and Their Families" USOE (Bureau of Education for the Handicapped)--Grant No. 0-71-4492(616). Selection and compilation of the material took place mainly at the University Hospital School of The University of Iowa.

A panel of experts appointed by NCEMMH to review the bibliography has recommended that NCEMMH arrange for publication of the bibliography. Therefore, as a service to all personnel working with handicapped young children--educators, physicians, and researchers--NCEMMH has provided for its publication, and, with the assistance of the Ohio State University Press, for its nationwide distribution on a nonprofit basis.

This is the first edition. The NCEMMH Reprint Series encompasses not only previously published materials which have gone out of print but also those which NCEMMH is publishing on behalf of another organization.

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PREFACE

This is the second volume (1972) in a series of annual publications. It is concerned with the literature pertaining to prevention and early care. The "early care" applies especially to those very young children who have cerebral palsy or related disabilities, singly or combined. Hopefully, bringing this material together, annotating it, and organizing it for easy reference will be of great assistance to those who have special interest in the subject.

Volume I (1971) evolved from annotations of the 1,085 publications which were selected on the subject. To some extent it was a survey of literature published over nearly a twelve year span prior to 1972. However, approximately seventy-five percent of the material which was annotated had been published during a seven year period, 1965-1971 inclusive.

This second volume (1972) is composed of annotations from 433 publications which were authored by 814 contributors. Of interest is the fact that 660 of these writers were not represented as authors in Volume I (1971). Nevertheless, 154 of them have annotations of different published material in both the 1971 and the 1972 volumes.

A relatively greater percent of more recent publications are represented in Volume II (1972) as compared to the initial volume. For example, seventy-five percent of the annotations contained herein are from publications during 1972. None are included beyond 1972 and none were selected prior to 1968.

Again, the compilers are indebted to persons who have either given support or worked on this project in other ways. Some have recommended excellent articles to be considered for annotation. Mrs. Beth Roth has continued to have major involvement as an annotator. Mrs. Mary Ann Esposito accomplished the typing and the arranging of the material for publication. The cooperation of librarians at the University of Iowa has been very helpful. The University Hospital School has continued to be the base of operation in accomplishing this work. Sincere gratitude is extended to these who are mentioned by name and to others who have so kindly aided in this project.

Raymond R. Rembolt
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Iowa City, Iowa
July 30, 1973

1. Abdul-Karim, Raja W., and Beydoun, Samir N.: "Amniotic Fluid: The Value of Prenatal Analysis," First of Two Parts, *Postgraduate Medicine*, 52:147-149+, August, 1972. (Series: For II see #2.)

   The importance of amniocentesis as a diagnostic aid in obstetrics is reviewed in this two-part article. In Part I the appearance of amniotic fluid, its osmolality, the electrolyte concentration of amniotic fluid, and the concentrations of urea, uric acid, creatinine, proteins, amino acids, lipids and prostaglandins in amniotic fluid are each discussed with regard to their significance in amniotic fluid analysis. Many findings concerning these individual factors are reported.

2. Abdul-Karim, Raja W., and Beydoun, Samir N.: "Amniotic Fluid: The Value of Prenatal Analysis," Second of Two Parts, *Postgraduate Medicine*, 52:236-241, September, 1972. (Series: For I see #1.)

   Bile pigment, hormones, cellular elements, and infectious agents are each discussed in Part II of this article with regard to their significance in amniotic fluid. Also briefly considered is the injection of substances into amniotic fluid for purposes of diagnosis, therapy, or both, and the various complications of amniocentesis that may occur. Although many references are mentioned, they are not listed at the conclusion of the article.

3. Abeson, Alan, and Blacklow, Julie: *Environmental Design: New Relevance for Special Education*. Arlington, Va.: Council for Exceptional Children, 1971. 120 pp.

   In this book are considered the status and the development of effective educational facilities for handicapped children. In the first section of the volume the findings and recommendations of a project entitled, "Physical Environment and Special Education: An Interdisciplinary Approach to Research," conducted by the Council for Exceptional Children, are presented. Planning procedures are the subject of Section 2 with several directors and architects presenting approaches to planning special education facilities. Section 3 is concerned with specific environmental and design problems and their solutions. Research findings as well as research needs and methodology are examined in Section 4.

4. Abrams, Robert C.: "The Impact of Cerebral Palsy on the Patient and His Family," in *The Chronically Ill Child and His Family*, edited by Matthew Debuskey. Springfield, Ill.: C.C. Thomas, 1970. Chapter 7, pp. 82-88.

   The term "cerebral palsy" is discussed and a classification system is presented. Treatment is emphasized with the role of the family in therapy and in the handling of the cerebral palsied child considered.

5. Adlard, B.P.F., and Dobbing, J.: "Vulnerability of Developing Brain. VIII. Regional Acetylcholinesterase Activity in the Brains of Adult Rats Undernourished in Early Life," *British Journal of Nutrition*, 28:139-143, July, 1972. (Series: For I see #96, II see #349, III see #6, IV see #350, V see #7, VI see #351, VII see #95, IX see #94.)

Acetylcholinesterase (AChE) activity was studied in the forebrain, cerebellum, and brain stem of three groups of 12-week-old rats. One group contained rats who had been undernourished during the fetal and suckling periods, but had been fed ad libitum since weaning (rehabilitated group). A second group was undernourished throughout life (undernourished group). A third group contained controls who had always been fed ad lib. The animals were sacrificed at age 12 weeks, and methods of study are described. Results are presented with regard to body and brain weights, AChE concentrations in the brain regions, and AChE total activity in the brain regions. On the basis of the findings "it is concluded that undernutrition during the period of most rapid brain growth results in a lasting change in both the concentration and total activity of AChE in the brain."

6. Adlard, B.P.F., and Dobbing, John: "Vulnerability of Developing Brain. III. Development of Four Enzymes in the Brains of Normal and Undernourished Rats," *Brain Research*, 28:97-107, April, 1971. (Series: For I see #96, II see #349, IV see #350, V see #7, VI see #351, VII see #95, VIII see #5, IX see #94.)

Male offspring, whose mothers had been malnourished as described during pregnancy and lactation, were sacrificed "at birth and at 8, 12, 14, 16, 18, and 21 days of postnatal age" in order to assess "the developmental profiles of 4 enzymes representative of different metabolic pathways or subcellular organelles." All methods are described. Results were compared to those of a group of control male offspring. At age 21 days the undernourished group had a body weight deficit of 66 percent compared to the controls. "The activities (per g wet wt of tissue) of the enzymes examined rose 3- to 5-fold between birth and 21 days in control animals. The development of succinate dehydrogenase (acceptor ferricyanide), fructose diphosphate aldolase and acetylcholinesterase was retarded by undernutrition. The activity deficits at 21 days were respectively 21%, 14%, and 11% compared with a deficit in brain weight of 27%. The developmental profile of β-N-acetylglucosaminidase, which is probably a lysosomal enzyme was unaffected by undernutrition." Implications are considered.

7. Adlard, B.P.F., and Dobbing, John: "Vulnerability of Developing Brain. V. Effects of Fetal and Postnatal Undernutrition on Regional Brain Enzyme Activities in Three-Week-Old Rats," *Pediatric Research*, 6:38-42, January, 1972. (Series: For I see #96, II see #349, III see #6, IV see #350, VI see #351, VII see #95, VIII see #5, IX see #94.)

Crude mitochondrial acetylcholinesterase activity was studied as described in four areas of the brain in normal and undernourished rats who were sacrificed at age 21 days. The activity of four other brain enzymes, butyrylcholinesterase, fumarate hydratase, β-galactosidase, and 5'-nucleotidase, was studied in littermates of these rats. A brain weight deficit of 20 to 22 percent was found in the undernourished rats as compared to the normally fed rats. "Crude mitochondrial acetylcholinesterase activity was less in three regions of the brain of undernourished animals than in control animals, whereas the undernourished group had higher whole brain 5'-nucleotidase activity." "The results lend support to the hypothesis that those constituents of the brain which show a large increase in concentration during brain growth are those most likely to be affected by growth retardation in early life." Results are discussed, and implications are considered.

8. Aladjem, Silvio; Perrin, Eugene; and Fanaroff, Avory: "Placental Score and Neonatal Outcome; A Clinical and Pathological Study," *Obstetrics and Gynecology*, 39:591-602, April, 1972.

Studied by both classic histological methods and by phase contrast microscopy were the placentas from 60 infants. The results were then compared to fetal outcome. Procedures are described. The results of the conventional histological examination of the placentas "did not correlate with the course of pregnancy, fetal outcome, Apgar score at birth or infant's weight." A scoring system was devised to be used when evaluating the placentas by phase contrast microscopy. This score was then correlated to fetal outcome. A score of zero was found to be related to "normal neonatal course, while the higher the score the greater the number of neonatal complications." There also "appeared to be a correlation between Apgar score at birth and placental score." The principle pathological findings revealed by phase contrast microscopy are described and related to various neonatal conditions. "Since 100% of infants with a placental score of 0 had a normal uncomplicated neonatal course while 50% of those with a placental score of 5 or more died and 36% had RDS, it is suggested that the placental score, as described in this study, may prove to be a valuable prognostic tool in evaluating the newborn's adaptation to extrauterine life."

9. Alden, Errol R.; Mandelkorn, Ted; Woodrum, David E.; Wennberg, Richard P.; Parks, Colby R.; and Hodson, W. Alan: "Morbidity and Mortality of Infants Weighing Less Than 1,000 Grams in an Intensive Care Nursery," *Pediatrics*, 50:40-49, July, 1972.

Reviewed is the experience of the authors over a five-year period with 161 such infants at the University of Washington Neonatal Intensive Care Unit. All of the surviving infants were assessed at ages ten and 15 months and thereafter on a yearly basis. Much data on the infants are presented. The mortality rate among the infants was 87 percent. Factors found to be associated with an increased survival probability and factors found to be associated with a decreased survival probability are enumerated. The most frequently seen morbidity problems were hyaline membrane disease, apnea, respiratory failure, and infection. Two of the 22 infants, surviving the neonatal period, died before age ten months. Of the 20 survivors, 12 had normal developmental quotients, six had high abnormal to borderline developmental quotients, and two were retarded. "Nine infants are completely normal, five have retrolental fibroplasia, three have minimal spasticity and/or hyperactivity," and "three infants have associated congenital defects." Findings are discussed and evaluated. "While it is clear that the long-term solution to the infant with a birth weight less than 1,000 gm. is the prevention of prematurity, these data do suggest that careful neonatal management can insure a reasonable prognosis in those infants who do survive."

10. Alderman, Mary, ed.: "Counseling Techniques; Guiding the Family of the Handicapped Child," *Patient Care*, 6:78-79, 82-83, 86-87, 90-91, 94-98, March 30, 1972.

This article was prepared in consultation with several listed authorities. Guidelines for the management by the physician of the handicapped child and his parents are presented and discussed. Examined are the steps of denial, guilt, and acceptance which parents go through upon learning of their child's handicap, the event of telling the parents, helping the parents toward acceptance, planning for the child, decision making, the susceptibility of such children to psychiatric disorders, family danger signals to be aware of, helping the parents with the fundamentals of child rearing, the referral to other services, providing routine medical care, and the importance of the physician's listening to the child as he develops.

11. Aleem, F.A.: "Total and Heat-Stable Serum Alkaline Phosphatase in Normal and Abnormal Pregnancies," *Obstetrics and Gynecology*, 40:163-172, August, 1972.

From weeks 26 to 41 of pregnancy serial determinations of total and heat-stable alkaline phosphatase were made as described on 71 normal pregnant women, 67 women with preeclampsia, 19 women with threatened abortion, three with intrauterine fetal death, and 20 prediabetic or diabetic women. The enzyme levels were found to progressively rise in the normal pregnant women while in the preeclamptic patients levels were significantly increased compared to the normal. This increase was found to antecede clinical signs. Levels were also increased in the women who threatened abortion, but in the prediabetic and diabetic women "a significant decrease from normal levels was noticed near term." Results are discussed and conclusions are presented. "It is concluded that changes in enzyme levels could be a manifestation of functional disturbances in the placenta, but before this test can be evaluated for routine use, further studies are required."

12. Alford, Charles A., Jr.; Foft, John W.; Blankenship, Willard J.; Cassady, George; and Benton, J.W., Jr.: "Subclinical Central Nervous System Disease of Neonates: A Prospective Study of Infants Born With Increased Levels of IgM," *Journal of Pediatrics*, 75:1167-1178, December, 1969.

In order "to determine whether or not an increased incidence of infections could be detected in infants who are born with elevated levels of IgM, and if so, to determine the types of infection and their clinical nature," IgM levels were determined from the umbilical cord sera of 2,916 consecutively born infants in a low income population as described. Serial examinations for infections were conducted on all of the neonates who had increased IgM levels as defined, and all of the neonates were carefully observed. Thorough examinations were also carried out "over an 8 to 18 month interval in 85 per cent of the cases." A control group consisted of 386 infants. Detailed results are presented. It was found that, compared to the controls, "there was a 30-fold or more increased infection rate in neonates born with elevated IgM values." "Data indicate that subclinical congenital infections with 'silent' CNS involvement occur frequently in certain newborn groups and may be an important cause of brain damage that is currently unclassified. When coupled with methods for specific identification, screening of cord and neonatal sera for elevated IgM can be helpful in the search for and definition of this type of disease."

13. Altman, Joseph, and McCrady, Barbara: "The Influence of Nutrition on Neural and Behavioral Development. IV. Effects of Infantile Undernutrition on the Growth of the Cerebellum," *Developmental Psychobiology*, 5:2:111-122, 1972. (Series: For I see #14, II see #15, III see #16.)

Quantitative histological techniques were employed to study the morphological development of the cerebellar cortex in rats whose mothers had been fed from 20 percent (severely undernourished) to 40 percent (mildly undernourished) of the normal diet during the nursing period. Results were compared to those of rats whose mothers had been fed ad libitum during nursing. The litter rats were then killed at 11, 17, 21, 30, and 60 days of age, and their brains were studied as described. Results are presented with regard to findings in the total cerebellar area, the external granular layer of the cerebellum, the molecular layer, the internal granular layer, and the medullary layer. While substantial changes were found in these areas, at "between 30-60 days a total areal recovery was observed in the molecular and internal granular layers in the mildly undernourished rats and substantial compensation in the severely undernourished rats." "This areal recovery was not due to a replacement of the lost cells but to an apparent compensatory increase of the 'neuropil.'" The only area that did not demonstrate any recovery after 30 days was the medullary layer. "This suggests the possibility of serious interference with myelination." These results are compared to those published in the other articles of this series.

14. Altman, Joseph; Das, Gopal D.; and Sudarshan, Kiran: "The Influence of Nutrition on Neural and Behavioral Development. I. Critical Review of Some Data on the Growth of the Body and the Brain Following Dietary Deprivation During Gestation and Lactation," *Developmental Psychobiology*, 3:4:281-301, 1970. (Series: For II see #15, III see #16, IV see #13.)

Recently raised questions concerning the relationship between undernutrition and body and brain development are listed. Then reviewed are human studies on nutritional deprivation. This section is followed by a more detailed review of animal studies which have been conducted in this area. The experimental techniques that have been devised to produce undernutrition in animals are explained. Animal studies dealing with "dietary deprivation before or during gestation," "dietary deprivation during infancy," and "dietary deprivation after weaning" are separately considered. In the final section of the article experimental dietary deprivation is related to the vulnerable periods in the development of the nervous system. Five pages of references follow the text.

15. Altman, Joseph; Das, Gopal D.; Sudarshan, Kiran; and Anderson, Jon B.: "The Influence of Nutrition on Neural and Behavioral Development. II. Growth of Body and Brain in Infant Rats Using Different Techniques of Undernutrition," *Developmental Psychobiology*, 4:1:55-70, 1971. (Series: For I see #14, III see #16, IV see #13.)

Compared with regard to the effects on body and brain development they produced were two methods of achieving undernutrition in infant rats. In Experiment I, mother rats were fed ad libitum, but their litter size was varied so that some raised litters of five pups while others raised litters of ten or

16 pups. In Experiment II, each mother rat raised a litter of eight pups, but some mothers were fed ad libitum during lactation while others were fed only 40 or 20 percent of their normal diet. Methods of killing the rats and processing their brains are described. The results of both experiments are presented. Experiment II "was found to be the more reliable way of producing experimental retardation in the growth of the body and of the brain during the preweaning period." Among the results discussed was the fact that both experiments failed to produce "retardation of brain growth during the first week of life."

16. Altman, Joseph; Sudarshan, Kiran; Das, Gopal D.; McCormick, Nancy; and Barnes, David: "The Influence of Nutrition on Neural and Behavioral Development. III. Development of Some Motor, Particularly Locomotor Patterns During Infancy," *Developmental Psychobiology*, 4:2:97-114, 1971. (Series: For I see #14, II see #15, IV see #13.)

Rat pups were nursed by mothers who were fed ad libitum, mothers who were fed 40 percent of their normal diet ('mildly undernourished,') or by mothers who were fed 20 percent of their normal diet ('severely undernourished.') From days three to 21 the rat pups were tested and compared with regard to their performance on described spontaneous motor activities ("general motor activity," "pivoting," "head lifting," and "standing") and on described induced motor activities ("hanging and moving on a horizontal string," "clinging and descending on vertical ropes," "climbing on a vertical rod," and "homing.") "The motor performance of the severely undernourished animals (offspring of mothers on a 20% diet) was inferior to normals in all the observations. This was manifested most commonly in reduced frequency or speed in the performance of certain acts, and in some cases in the prolonged persistence of infantile motor patterns or a delay in the appearance of more advanced patterns."

17. American Academy of Pediatrics. Committee on Environmental Hazards: "Lead Content of Paint Applied to Surfaces Accessible to Young," *Pediatrics*, 49: 918-921, June, 1972.

The above Committee makes a report in this article on its recommendation "that Federal standards for lead content of paint used on surfaces accessible to young children be reduced to 'minimum traces' or $<0.06\%$, and that paints containing more than this amount of lead be banned as hazardous substances." Findings from studies by the Committee concerning "maximum daily permissible intake (DPI)," adverse reactions, etc. are also reported.

18. Amstey, Marvin S.; Hochberg, Charles J.; Choate, John W.; Wax, Stuart H.; and Lund, Curtis J.: "Comparative Analysis of Amniotic Fluid Bilirubin," *Obstetrics and Gynecology*, 39:407-410, March, 1972.

The authors compared the Ovenstone and the conventional Liley method of analyzing amniotic fluid samples with regard "to their ability to predict fetal outcome and the need for intrauterine transfusion." A total of 324 fluid analyses in 94 Rh-sensitized women were studied. Methods and results are described. It was found that "the Liley and the Ovenstone method compliment each other, and both analyses would be more valuable than any single method for interpreting amniotic fluid curves."

19. Andersen, Carol B.: "Dynamic Knee Splint to Prevent Hyperextension," *Physical Therapy*, 52:944-945, September, 1972.

Such a splint is pictured and described. It is designed to be used for "handicapped patients who might otherwise have to be confined to long-leg braces to control knee hyperextension."

20. Anderson, Thomas A.; Fomon, Samuel J.; and Filer, Lloyd J., Jr.: "Carbohydrate Tolerance Studies With 3-Day-Old Infants," *Journal of Laboratory and Clinical Medicine*, 79:31-37, January, 1972.

Carbohydrate tolerance tests were carried out by feeding 90 normal three-day-old formula fed infants one of six corn starch derivatives. Blood samples were obtained before and after each feeding as described. "Feeding of glucose resulted in the greatest rise in glucose concentration whereas feeding the 2 forms of starch resulted in minimal increases. Feedings of maltose, Dextri-Maltose, and D.E. (dextrose equivalent) 11 were followed by increases in glucose concentrations of the blood intermediate between those from feeding starch and glucose. When the test carbohydrates were fed as 20 per cent aqueous solutions, carbohydrate tolerance curves differed from those obtained when the same carbohydrates were fed as part of a formula containing protein and fat. Greater peak increases in glucose concentrations of the blood and more prompt return toward prefeeding values occurred after feeding a carbohydrate in aqueous solution than when the same carbohydrate was fed as a component of a formula."

21. Andrews, Joan, and McGarry, John M.: "A Community Study of Smoking in Pregnancy," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:1057-1073, December, 1972.

Studied with regard to the effects of smoking in pregnancy were all women pregnant from 1965 to 1968 in the city of Cardiff, Wales. The total number of pregnant women recorded during this time was 18,631. Results are presented concerning infant weight, premature labor, small-for-dates infants, perinatal mortality, congenital malformation, surgical induction of labor, pre-eclamptic toxemia, hypertension, antepartum hemorrhage, and thrombo-embolism. Conclusions are presented.

22. Asirifi, Y.: "Aetiology of Cerebral Palsy in Developing Countries," *Developmental Medicine and Child Neurology*, 14:230-232, April, 1972.

Cerebral palsy is defined, and the various etiologies of the condition seen in "developing countries" are discussed. It is pointed out that although the incidence of cerebral palsy in developing countries is not accurately known, "a conservative estimate would make it at least twice as common as in advanced countries." A definite relationship is seen to exist between the standard and availability of obstetric and child care and the incidence of cerebral palsy. Prematurity and the birth of babies to older mothers are known to occur more frequently in developing countries. Neonatal jaundice, CNS infections, febrile convulsions, and post-natal accidents are each discussed as being important etiological factors in cerebral palsy in developing countries. "Cerebral palsy is an important paediatric and social problem in developing countries. It will become more so when the present flood of infectious and parasitic diseases is stemmed, unless the expansion in the maternal and child health services keeps pace with the general health expansion programmes."

23. Avery, Gordon B.; Meneses, Luis; and Lodge, Ann: "The Clinical Significance of 'Measurement Microcephaly'," *American Journal of Diseases of Children*, 123:214-217, March, 1972.

One hundred infants, having had serious illness during the first three months of life, were followed to one year of age. Twenty-eight of these infants were found upon examination at age one year "to have occipitofrontal head circumferences 2 standard deviations below the mean (-2SD) or greater." The babies were divided into two groups according to whether or not the illness incurred was diagnosed as being associated with the CNS and could therefore be related to mental retardation. Sixteen infants (Group 1) had had illnesses which usually do not result in brain damage while 12 infants (Group 2) had had illnesses "frequently associated with brain damage." "Although mean head circumference was similar for these two groups, incidence of mental retardation was higher in children with CNS-associated diagnoses (75% as opposed to 31%)." Assessment measures are described. It is noted that the findings indicate the need for "caution in prematurely labeling a small-headed infant defective."

24. Awad, Essam A.: "Phenol Block for Control of Hip Flexor and Adductor Spasticity," *Archives of Physical Medicine and Rehabilitation*, 53:554-557, December, 1972.

Other techniques used for the control of spasticity are briefly discussed. Then described are two techniques used by the author for the control of hip flexor and adductor spasticity. The techniques utilize "electrical stimulation as a guide for localization of the innervation to the involved muscles." Results of 123 procedures on the hip adductor in 56 patients and 16 blocks of hip flexors in 13 patients are presented. "The advantages of these techniques are: simplicity, long-lasting effect, absence of the need for limitation of a patient's activity following the procedure as well as the immediate change in tonus, which enables the physiatrist to tailor the neurolysis to the needs of the particular patient."

25. Babson, S. Gorham, and Benson, Ralph C.: *Management of High-Risk Pregnancy and Intensive Care of the Neonate.* 2nd ed. St. Louis: C.V. Mosby, 1971, 313 pp.

This subject is thoroughly considered in this book containing 16 chapters. Specific chapters are devoted to the etiology of the high-risk fetus; those "complications of pregnancy" which cause early birth and those which necessitate early delivery; fetal growth, maturity, and health assessment; the diagnosis of fetal distress; and "labor and delivery in high-risk pregnancy." Consideration is then given to the high-risk neonate in separate chapters dealing with the aspects of the "care of the high-risk infant at birth," the "classification of infants at birth by weight and gestational age," neonatal infections, other neonatal disorders and their management, the responsibilities of members of the interdisciplinary team upon discharge of the high-risk neonate from the hospital, the "sequelae of prematurity," and the "prevention of prematurity and high-risk pregnancy." References are listed within chapters after sections of the text, and an appendix contains "definitions and terms."

26. Bacigalupo, Giovanni, and Saling, Erich: "A New Aspect of the Role of Blood 5'-Adenosine Triphosphate in Fetal and Neonatal Hypoxia," *American Journal of Obstetrics and Gynecology*, 114:631-638, November 1, 1972.

The properties of 5'-adenosine triphosphate (ATP) are described. ATP was obtained as explained from the blood of the cord veins and arteries of 95 term newborns in order "to determine whether there are arteriovenous differences of the ATP levels in cord blood and whether fetal metabolic acidosis, commonly due to fetal hypoxia, effects the ATP levels in the blood cells of the fetoplacental unit." Among the findings were "that increased metabolic acidity in umbilical blood was commonly accompanied by a reduced oxygen supply to the fetus during the previous stage of labor" and that "there was also a good correlation between metabolic acidity and the general condition of the neonate as judged by the clinical score" (described). With regard to ATP levels found in the cord blood, they were usually found to be significantly higher in the umbilical vein blood than they were in the umbilical artery blood. However, in the neonates who had metabolic acidosis, this "characteristic ATP difference was abolished by a relative increase of the ATP level in umbilical artery blood." Findings were similar when ATP levels in the blood cells were computed. These results are interpreted. "Since higher concentrations of ATP enhance oxygen delivery from hemoglobin, one may speculate that the increased ATP levels in the blood cells of the umbilical artery blood of newborn infants with metabolic acidosis favor oxygen release to the hypoxic tissue of the fetus and the newborn infant" thus increasing his chances of survival.

27. Bang, J., and Northeved, A.: "A New Ultrasonic Method for Transabdominal Amniocentesis," *American Journal of Obstetrics and Gynecology*, 114:599-601, November 1, 1972.

The risks involved in amniocentesis are enumerated, and a method devised to reduce the risk of the procedure is presented. Ultrasonic scanning is utilized to locate the placenta and the fetal position. A special transducer, that is pictured and described, is then used "to introduce the puncture needle into the amniotic cavity under the direct guidance of ultrasonic scanning." Employment of the method in 68 amniocenteses resulted in 64 of these procedures being done without complications. The other four cases are described, and comment is made.

28. Banks, Henry H.: "The Knee and Cerebral Palsy," *Orthopedic Clinics of North America*, 3:113-129, March, 1972.

Knee problems common in cerebral palsy and their treatment are discussed. These include flexion, recurvatum, high patella, chondromalacia, and valgus. Many illustrative photographs are included.

29. Barnard, W.P., and Logan, R.W.: "The Value of Urinary Oestriol Estimation in Predicting Dysmaturity," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:1091-1094, December, 1972.

Serial urinary estriol estimations were conducted by a described automated procedure on 201 obstetric patients in order to determine the value of such estimations in predicting dysmaturity as defined. The cases were divided into a 'normal' group (165 cases) and a 'dysmature' group (36 cases) on the basis of birth weight. Statistical methods are explained. "Single oestriol measurements early in the third trimester are shown to be of little value in the detection of dysmaturity. The presence or absence of a rising trend in oestriol results is a more reliable index of the occurrence of dysmaturity."

30. Barnes, J.S.; Hamlett, J.D.; and Hibbard, B.M.: "Assessment of Reduction in the Volume of Liquor Amnii," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:299-303, April, 1972.

Liquor volume studies were conducted on 96 women who were considered to be at risk of placental insufficiency. The liquor volume was assessed by abdominal palpatation, by amnioscopy, and by dilution techniques following amniocentesis. In 13 cases the latter procedure was not successful. This procedure has not been widely used mainly "because of possible radiation hazards to the fetus." Results are presented comparing the first two methods to the third. All methods are described. The results indicated that "abdominal palpatation is an unreliable method of detecting a reduction in liquor volume." "Although amnioscopy is more reliable it gives rise to false conclusions in up to 40 per cent [of the] cases." Results are discussed, and it is concluded that "undue weight should not be placed on amnioscopic prediction of liquor volume in the overall assessment of fetal well-being and in defining management of patients with suspected placental insufficiency."

31. Batstone, Gifford F.; Blair, Alastair W.; and Slater, Jack M., eds.: *A Handbook of Pre-Natal Paediatrics for Obstetricians and Paediatricians*. Philadelphia: J.B. Lippincott, 1971. 225 pp.

Among the subjects examined in the 11 chapters of this book are fetal monitoring, "assessment of placental function," "estimation of length of gestation," "disorders of fetal growth," "blood group iso-immunization," "drugs and the fetus," "fetal infection and the effects of maternal disease," "genetics and genetic counselling," "management of fetal abnormalities," and "pre-natal environmental influences on behaviour." Reference lists are placed after each chapter, and there are two appendices.

32. Battle, Constance U.: "The Role of the Pediatrician as Ombudsman in the Health Care of the Young Handicapped Child," *Pediatrics*, 50:916-922, December, 1972.

While the interdisciplinary or team approach to the care and treatment of the handicapped child is indeed "admirable in concept," it is pointed out that this approach often leads to "fragmented care and lack of integration" in the child's program which may cause frustration for both the child and his family. The care of a child with acrocephalosyndactylism is presented as an example "to demonstrate that it is the logical role of the pediatrician to assume responsibility and leadership of the team." "By accepting this responsibility, the pediatrician rightfully assumes a primary position rather than the secondary or even forgotten one he has sometimes unfortunately occupied."

33. Beard, R.W.; Brudenell, J.M.; Feroze, R.M.; and Clayton, S.G.: "Intensive Care of the High Risk Fetus in Labour," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:882-893, October, 1971.

In a one-year prospective study 392 high risk fetuses, as defined, were monitored during labor and were compared as to clinical details with 1,569 fetuses who were not monitored. The selection of the monitored patients, the procedures used during labor, the intrapartum and neonatal deaths that occurred, and practical problems involved in monitoring are described. "It has been found that fetal monitoring is a practical procedure on an average labour ward. Clinical management of the mother and fetus based on the results of monitoring has proved safe and has not led to an increase in operative interventions or intrapartum fetal mortality." Five case histories are presented to "illustrate the contribution of FHR monitoring to the clinical management of patients in labour."

34. Beischer, Norman A., and O'Sullivan, Edward F.: "The Effect of Rest and Intravenous Infusion of Hypertonic Dextrose on Subnormal Estriol Excretion in Pregnancy," *American Journal of Obstetrics and Gynecology*, 113:771-778, July 15, 1972.

Forty-two obstetric patients "with persistently low estriol excretion" were treated with bed rest in the hospital as described. Twelve of these patients were also treated with intravenous hypertonic dextrose infusion after the estriol levels continued to be below normal with bed rest. Of the 30 patients treated with bed rest, only ten experienced a rise in estriol excretion "above the lower limit of normal." Of the 12 patients treated with infusion of dextrose, six experienced a rise in estriol excretion "above the lower limits of normal" with "the rate of improvement being greater than in those who responded favorably to rest in bed alone." "Hypertonic dextrose infusion appeared to improve fetal nutrition and well-being even when the fetus was malformed and clinically growth retarded." Both favorable and unfavorable fetal results in these 42 study cases are described. An overall finding in the study was "that there is a high incidence of major congenital fetal abnormalities when maternal estriol excretion is persistently low." The value of intravenous dextrose infusion in such cases is considered to be promising.

35. Bench, John; Collyer, Yvonne; Langford, Cheryl; and Toms, Roma: "A Comparison Between the Neonatal Sound-Evoked Startle Response and the Head-Drop (Moro) Reflex," *Developmental Medicine and Child Neurology*, 14:308-317, June, 1972.

Differences among authors concerning the usage of the term "Moro reflex" is discussed. A study involving 12 normal neonates and eight trained observers is described in which the startle response to a sound was compared to the head-drop (Moro) reflex for the purpose of determining whether the responses elicited were qualitatively different. If this were the case, "then the practice of referring to all sound-evoked startles as 'Moro' reflexes would be called into question." Four hypotheses concerning the comparison are listed, and the testing and observation procedures and the results are presented in detail. It was concluded that in this group of infants the behavior following a head-drop was clearly differentiated from that following a particular sound, "when stimulated in prestimulus states of minimal activity." The terming of all sound-evoked startle responses as Moro reflexes was thus questioned.

36. Bender, Leonard F., and Bender, Nancy M.: "Management of Spastic Diplegia by the Physiatrist," *Michigan Medicine*, 71:109-112, February, 1972.

The evaluation by the physiatrist of the young spastic diplegic patient from his gestational history to his present level of mobility is considered. The contributions of other members of the interdisciplinary team to this assessment procedure are noted. Treatment is begun and patient goals are set by the physician after this complete evaluation. Therapy techniques are listed, and other treatment methods, such as drugs, phenol injections, surgery, 'operant conditioning,' and bracing are discussed.

37. Bennebroek Gavenhorst, Jacob: *Intrauterine Transfusion; A Therapeutic Intervention in Erythroblastosis Foetalis*. Leiden: Druco Drukkerijbedrijven, [1968] 157 pp.

The object of this monograph presented in six chapters is stated as being to find answers to the following questions: "(1) Does the analysis of amniotic fluid materially contribute to the diagnosis of erythroblastosis foetalis? (2) Do the results of intrauterine transfusion outweigh the risks to mother and child involved in this procedure? (3) In which cases should intrauterine transfusion be considered?" "Diagnostics" is the subject of Chapter One, "Amniocentesis" that of Chapter Two, and the "Spectrophotometric Analysis of Amniotic Fluid" that of Chapter Three. The concern of Chapter Four is the "Prevention and Therapy of Erythroblastosis Foetalis during Pregnancy," and in Chapter Five "the Sensitized Women on Whom Amniocentesis Was Performed and Who Were Treated in the Department of Obstetrics of the Leiden University Hospital" are described. The contents are summarized and several pages of roentgenograms are presented in Chapter Six. Fourteen pages of references follow.

38. Bergstrand, C.G.; Karlsson, Börge W.; Lingberg, Tor; and Ekelund, Hans: "a-Foetroprotein, Alubmin and Total Protein in Serum From Preterm and Term Infants and Small for Gestational Age Infants," *Acta Paediatrica Scandinavica*, 61:128-132, March, 1972.

a-Fetoprotein, albumin, and total protein were studied in the serum of a group of neonates having various birth weights and gestational ages. These infants, how they were grouped for study, and the analytical and statistical methods are described. The a-fetoprotein level was found to be "significantly higher in preterm than in term infants both with birth weights appropriate for gestational age." "No difference was noted between infants born at term with birth weights appropriate and low for gestational age." Results also showed that "the albumin and total protein levels were significantly lower in term infants small-for-gestational-age than in term infants appropriate-for-gestational age." It is concluded that "the serum levels of a-foetoprotein may be used as an indicator of gestational age."

39. Bernheimer, Lucinda; Keaster, Jacqueline; and Linthicum, F.H., Jr.: "Neonatal Hearing Screening," *California Medicine*, 116:5-8, January, 1972.

Problems involved in the screening of the hearing of neonates are discussed. The hearing of 521 neonates was screened as described in a hospital nursery. "At the outset, a number of questions were posed: (1) Can responses to an external stimulus - that is, sound - be reliably differentiated from responses to the many internal stimuli operating in the neonate? (2) What personnel should be used for testing? (3) How predictive are responses or non-responses in the newborn period? (4) Does the statistic that 1 in 2000 children is born with a hearing loss justify the time and expense necessary for setting up such a screening program?" Thirty-five percent or 181 of the 521 neonates screened showed no response to the tone presented using the criteria established. Of the 521 neonates, 147 were re-evaluated as described at three and four months of age. "Of the 147, 145 passed without question, although 51 of these infants had failed in the nursery." Results indicated "considerable disagreement" among the five observers, who had varing amounts of training and experience. On the basis of results, recommendations and possible improvements are presented. "On the basis of our experience, we cannot recommend a hearing screening program as a routine measure with a newborn population."

40. Bjerre, Ingrid, and Blennow, Gösta: "Methocarbamol in the Treatment of Cerebral Palsy in Children," *Neuropädiatrie*, 3:140-146, October, 1971.

Thirty-six cerebral palsied children were given Methocarbamol, "a skeletal muscle relaxant considered to act upon polysynaptic reflex arcs," in a "double blind study with cross over." The children were paired according to similar diagnoses. One child of each pair received the drug for two months while the other received a placebo. This process was then reversed for the following two months. All other therapy the children were receiving was continued as usual. The children were given a described motor test before the study, after treatment, and at the end of the study. They were also assessed by parents and subjectively, by physiotherapists. "A good effect was noted, above all, on spastic diplegia, in which group half of the children experienced improvement. The beneficial effect on the lower limbs was statistically significant ($p < 0.01$)." Side effects of the drug as well as other elements in the study are discussed.

41. Black, John: *Neonatal Emergencies and Other Problems*. New York: Appleton-Century-Crofts, 1972. 282 pp.

In the 22 chapters of this book, designed for both the obstetrician and pediatrician, the author considers many of the problems that one may incur in caring for neonates. Among the topics considered are apnea at birth, birth trauma, jaundice, hemolytic disease, infections, maternal diabetes, maternal drug addiction, convulsions, low birth weight babies, and the examination of the neonate. There are six appendices.

42. Blackburn, Michael G.; Orzalesi, Marcello M.; and Pigram, Penelope: "The Combined Effect of Phototherapy and Phenobarbital on Serum Bilirubin Levels of Premature Infants," *Pediatrics*, 49:110-112, January, 1972.

This 'combined effect' was studied in six sets of premature identical twins. All of the neonates received phototherapy treatment for six days as described. One twin of each set also received phenobarbital as described for the six days. The infants, all methods used, and results obtained are presented. "There were no significant differences between the phototherapy and phototherapy plus phenobarbital groups for all parameters studied," thus indicating "that there is no advantage in combined therapy in the management of jaundice of prematurity."

43 Blencowe, Susan M., ed.: *Cerebral Palsy and the Young Child*. Edinburgh: E. & S. Livingstone, 1969. 156 pp.

This book is designed to aid those working with young cerebral palsied children in every field. The contributors are members of the staff of the Centre for Spastic Children, Cheyne Walk. Cerebral palsy is defined, and its causes and physical manifestations described. The aspects of hearing loss, vision assessment, physio-therapy, occupational therapy, speech therapy, psychological factors, educational needs, special care and assessment, and social factors are each discussed as they relate to the young patient. There is a short chapter describing the special equipment found to be most useful, and a glossary of terms is included.

44. Blockley, Jennifer, and Miller, Gillian: "Feeding Techniques With Cerebral-Palsied Children," *Physiotherapy*, 57:300-308, July, 1971.

In this article, "written for therapists, students, nurses, and mothers," the normal stages in the development of feeding are reviewed, including sucking, swallowing, biting, chewing, drinking, and head control and manipulation. These are then contrasted with a description of the abnormal feeding patterns seen in the physically handicapped child. Techniques are presented in the areas of positioning for feeding, lip closure, swallowing, chewing, and drinking which will aid in the establishment of good feeding patterns in cerebral palsied children.

45. Blom, Sigfrid, and Finnström, Orvar: "Studies on Maturity in Newborn Infants. V. Motor Conduction Velocity," *Neuropädiatrie*, 3:129-139, October, 1971. (Series: I and III cited in previous volume. For II see #110, IV see #111, VI see #112.)

Motor conduction velocities were determined in the ulnar and/or peroneal nerves of 174 neonates of various gestational ages. Results of statistical analyses are presented. The motor conduction velocity was found to correlate significantly with gestational age in this group of newborns with the velocity of the peroneal nerve having a higher correlation. It was felt that the method "is of limited value in estimating the gestational age of individual newborn infants" because at a constant gestational age, the variation in the results was quite wide. "Motor conduction velocity does not seem to be retarded in small-for-gestational-age infants, or in infants who have had signs of perinatal asphyxia, hyperbilirubinemia or minor neurological symptoms in the neonatal period. Therefore, it is a suitable method for comparing the mean gestational ages of groups of newborn infants." Pre-term infants were found to "have a mean motor conduction velocity comparable to that of fullterm newborn infants" when they reach "the time for expected delivery outside the uterus."

46. Bloom, Stephen Leonard; Horswill, C. Weir; and Curet, Luis B.: "Effects of Paracervical Blocks on the Fetus During Labor: A Prospective Study With the Use of Direct Fetal Monitoring," *American Journal of Obstetrics and Gynecology*, 114: 218-222, September 15, 1972.

The literature concerning paracervical blocks and the occurrence of fetal problems is reviewed. A specific, described technique was used to administer 87 paracervical blocks to 51 patients in order to study the effects of this technique on the fetus. Direct and continuous fetal heart rate monitoring was conducted as described, and no late decelerations or bradycardia occurred.

47. Bobath, Berta: "Motor Development, Its Effect on General Development, and Application to the Treatment of Cerebral Palsy," *Physiotherapy*, 57:526-532, November, 1971.

The relationship of movement to learning, the application of "normal child development" knowledge to the treatment of cerebral palsy, and the principles of the neuro-developmental approach to treatment are discussed. "Pitfalls" or mistakes to be made when using this approach to treatment are also described as are certain "normal movements which should be strictly avoided in the treatment of children with cerebral palsy, as they work into and reinforce the patterns of spasticity or spasm." Briefly outlined are the major stages of motor development to age ten months.

48. Bobath, K.: "The Normal Postural Reflex Mechanism and Its Deviation in Children With Cerebral Palsy," *Physiotherapy*, 57:515-525, November, 1971.

In this article the "basic ideas" of the Bobath approach to the treatment of cerebral palsy are developed. Cerebral palsy is defined and important points "inherent in this definition" are explained. The "normal function of the central nervous system," "the normal postural reflex mechanism," and "normal child development" are discussed. In contrast and in relation to these is then presented a description of the cerebral palsied child. Individually described and illustrated are the "relevant tonic reflexes." These are (1) the tonic labyrinthine reflex; (2) the tonic asymmetrical tonic neck reflex and the symmetrical neck reflex; (3) associated reactions; and (4) the positive supporting reaction. Treatment planning is briefly discussed.

49. Bogdanoff, Bruce; Rorke, Lucy Balian; Yanoff, Myron; and Warren, W. Stuart: "Brain and Eye Abnormalities; Possible Sequelae to Prenatal Use of Multiple Drugs Including LSD," *American Journal of Diseases of Children*, 123:145-148, February, 1972.

Reported and discussed is the case of an infant whose mother had "smoked marihuana and used multiple drugs, including lysergic acid diethylamide (LSD) throughout pregnancy." The infant died at age 13 months with numerous eye and brain abnormalities having been apparent since birth. Detailed findings at autopsy are described, and similarities among the other 18 reported cases of infants born to mothers who had taken LSD during pregnancy are noted.

50. Bolognese, Ronald J.; Corson, Stephen L.; and Touchstone, Joseph C.: "Factors Affecting the Yield of Urinary Estriol," *Obstetrics and Gynecology*, 39:683-687, May, 1972.

Technical and maternal factors, other than the occurrence of fetal distress, that can affect urinary estriol levels during pregnancy are considered. Ways of decreasing some of the effects of these factors are briefly discussed.

51. Boone, Donald R., and Hartman, B.H.: "The Benevolent Over-Reaction; A Well-Intentioned But Malignant Influence on the Handicapped Child," *Clinical Pediatrics*, 11:268-271, May, 1972.

The "'Benevolent Over-Reaction' or B.O.R." is defined as being the preferred term for "the cluster of parental actions which includes over-protection, over-indulgence and permissiveness, commonly referred to as 'spoiling' by the layman." In 97 handicapped children who were under six years of age and who were studied by the authors at The Developmental Evaluation Clinic of Western North Carolina, "B.O.R. was seen as a significant factor" in 65 percent. The prevention of the B.O.R. through counseling is discussed. The authors feel that when the physician presents to the parents the child's diagnosis and prognosis, it is most important that he also present "the prognosis for parental feelings and actions" and give "pertinent prophylactic advice then and there." Also pointed out is the importance of early identification of the handicapping condition in order that preventive counseling be initiated early. The need for follow-up is stressed. Case histories illustrate.

52. Brann, Alfred W., Jr., and Montalvo, Jose M.: "Barbiturates and Asphyxia," *Pediatric Clinics of North America*, 17:851-862, November, 1970.

Reviewed in this article are the "data suggesting a protective effect of barbiturates on the central nervous system following asphyxia." Numerous studies on animals are described, and resultant data are "compared and analyzed using the following criteria: (1) the pattern and duration of respiratory efforts during asphyxia; (2) biochemical and physiological responses during asphyxia; (3) the pattern of response during resuscitation; (4) clinical response following resuscitation; (5) neuropathological data in surviving animals." It is concluded that "some of the adverse effects of asphyxia on the central nervous system of animals can be significantly altered and in some instances prevented by the administration of barbiturates to the animal prior to an asphyxial episode" and also that "a similar degree of protection can be afforded the term fetus by pretreatment of the mother with barbiturates." "In the future a drug or drugs may be available that, when administered to the mother, could materially alter the damaging effects of asphyxia on the central nervous system of humans."

53. Brasel, Jo Anne, and Winick, Myron: "Maternal Nutrition and Prenatal Growth; Experimental Studies of Effects of Maternal Undernutrition on Fetal and Placental Growth," *Archives of Disease in Childhood*, 47:479-485, August, 1972.

The accepted concepts of cellular growth are reviewed, and the four phases of cellular growth are outlined. The effect of malnutrition on cellular growth is then discussed. "Malnutrition induced during the hyperplastic stage of growth will interfere with cell division leading to generally irreversible deficits in cell number. Malnutrition during the hypertrophic stage of growth will affect cell size which is easily reversible with refeeding." Using these parameters the human placenta may be examined after birth to assess the effects of maternal nutrition on the fetus. Studies concerned with prenatal malnutrition in rats and the subsequent course of these animals are described. Also described are similar studies of prenatal malnutrition in humans. Tables are presented which summarize the "effects of prenatal malnutrition in the rat" and the "possible effects of prenatal malnutrition in the human." Studies concerned with DNA polymerase activity and malnutrition are also reviewed.

54. Brazelton, T. Berry: "Infant Outcome in Obstetric Anesthesia," *ICEA News*, November-December, 1970.

Prenatal factors that contribute to the individual differences seen in the newborn are discussed with the ingestion of drugs by the mother given special attention. Studies concerned with the impaired behavioral response of the newborn to maternal medication are described as are studies of the relationship between maternal medication and breastfeeding. The author expresses concern over "the subtle effects on the early mother-infant relationship" that depressant drugs may have.

55. Brewer, J.: "A Crawling Jacket," *Physiotherapy*, 55:241-242, June, 1969.

Such a device used at the Watford Spastics Centre to date on the cerebral palsied children ages 16 months to four years is described and pictured. It aids in the ability of the child to move and play. Four advantages and two disadvantages are listed.

56. Brierley, J.B., and Meldrum, B.S., eds.: *Brain Hypoxia*. London: Spastics International Medical Publications in association with Heinemann Medical Books, 1971. 320 pp. (Clinics in Developmental Medicine, Nos. 39/40).

Published in this volume are the Proceedings of the International Symposium on Brain Hypoxia which was held at The Medical Research Council Laboratories in Corshalton, Surrey, England in August, 1970. The 26 papers are presented in seven parts under the headings of "Cerebral Blood Flow," "Electronmicroscopy," "The Biochemical Approach," "Post-hypoxic Brain Swelling," "Atmospheric Decompression," "Hypoglycaemia," and "Epilepsy." References are listed after each paper, and discussions conducted on the papers are summarized as is the "Concluding Discussion" of the Symposium.

57. Brockman, Lois M., and Ricciuti, Henry N.: "Severe Protein-Calorie Malnutrition and Cognitive Development in Infancy and Early Childhood," *Developmental Psychology*, 4:312-319, May, 1971.

"Categorization performance" in sorting tasks was studied as described in 20 severely malnourished children ages 11.8 to 43.5 months, and in 19 matched controls in order to determine if severe malnutrition affects such performance, if the providing of nutritional treatment will significantly improve this performance, and if the level of categorization performance is "related to chronological age, severity of malnutrition, or such anthropometric measures as body length, weight, and head circumference." Test scores showed "that the malnourished children performed significantly lower than the controls, and the younger children ($<$ 24 months) lower than the older ($>$ 24 months) children." When the malnourished children were retested after 12 weeks of nutritional treatment, there was "no significant increase in test scores." "Test scores of the experimental subjects were correlated negatively with all body measure percentages at admission, and positively with changes in body length and head circumference percentages between admission and first testing, length of time in nutritional treatment, and medical ratings of nutritional recovery." Results are discussed.

58. Brown, Diana L.: *Developmental Handicaps in Babies and Young Children; A Guide for Parents*. Springfield, Ill.: C.C. Thomas, 1972. 89 pp.

This is a nontechnical book written by a social worker and designed to introduce parents to developmental handicaps. Topics discussed include the etiology of brain damage; the prevention of handicaps; the characteristics of brain damaged infants and young children; the "general developmental problems" such as orthopedic, visual, hearing, and speech and language problems and minimal brain dysfunction; and some of the infantile and childhood handicaps such as mental retardation, cerebral palsy, and epilepsy. Chapter 7 is a glossary of terms. Chapters 8, 9, and 10 are concerned with diagnosis, resource agencies, and counselling, respectively. A bibliography is included.

59. Brown, J.K.; Cockburn, F.; and Forfar, J.O.: "Clinical and Chemical Correlates in Convulsions of the Newborn," *Lancet*, 1:135-138, January 15, 1972.

A group of 142 infants, who had experienced neonatal convulsions, were neurologically and biochemically examined as newborns, and the survivors were re-examined at ages four months and one year. In 62 of the infants the convulsions "were considered to have resulted from brain damage," and in 80 of the infants the convulsions were considered to have resulted from "primary metabolic disturbance." The basic signs of brain damage as well as those signs that were found to be closely associated with the basic signs are listed. Also presented are some of the other clinical features found to be related or unrelated to the convulsions associated with brain damage or to the convulsions related to metabolic disturbance. "Convulsions due to brain damage tended to occur in the first three days of life or after the eighth day, and convulsions due to metabolic disturbance between the fifth and eighth days." Later fits occurred in 22 percent of the survivors in the brain damaged group and 2.5 percent of the metabolic disturbance group. At follow-up 54 infants were found to be neurologically impaired. The importance of differentiating between metabolic neonatal convulsions and those neonatal convulsions resulting from brain damage is stressed.

60. Brown, R.C., and Beckfield, W.J.: "Computer-Assisted Spectrophotometric Analysis of Amniotic Fluid in Erythroblastosis Fetalis," *American Journal of Clinical Pathology*, 57:659-663, May, 1972.

Described is a method of spectrophotometric analysis of amniotic fluid in which a computer is "used to assist in the analysis of absorbance changes in amniotic fluid from Rh-sensitized pregnancies." In the experiment in this article the method was used on 50 specimens from 19 Rh-sensitized patients. Results compared favorably to the customary graphic method of data analysis. Advantages and comparison problems are discussed.

61. Brown, R.J.K., and Valman, H.B.: *Practical Neonatal Paediatrics*. Oxford: Blackwell Scientific Publications, 1971. 92 pp.

This is intended to be a practical guide with many neonatal problems discussed very concisely. "The 'At Risk' Infant," "Routine Examination of the Newborn," "Birth Trauma," "Small Infants," "Convulsions," "Jaundice," "Fever," and "Infection" are among the 14 chapter titles. Also included are the Apgar Table, a "table of birth weight percentiles for gestational age," a brief listing and description of neonatal reflexes, a fold-out developmental assessment chart, and several other tables.

62. Burd, Laurence I.; Motew, Martin; and Bieniarz, Jozef: "A Teaching Simulator for Fetal Scalp Sampling," *Obstetrics and Gynecology*, 39:418-420, March, 1972.

The increased usage of fetal scalp sampling in high-risk pregnancies is discussed. Pictured and described is such a simulator, developed at Michael Reese Hospital, to be used by residents to practice the procedure of fetal scalp sampling. The technique is described.

63. Burke, David, and Ashby, Peter: "Are Spinal 'Presynaptic' Inhibitory Mechanisms Suppressed in Spasticity?," *Journal of the Neurological Sciences*, 15:321-326, March, 1972.

While muscle vibration has been found to suppress or abolish tendon jerks and H reflexes in normal subjects, muscle vibration was found to have "little effect on the monosynaptic reflexes" in the 18 spastic patients who were tested as described. Results are discussed. "It is suggested that these differences between normal and spastic man are best explained by suppression of 'presynaptic' inhibitory mechanisms in spasticity. It is postulated that the absence of these inhibitory mechanisms plays a significant role in the increased muscle tone of spasticity."

64. Burry, Hugh C.: "Objective Measurement of Spasticity," *Developmental Medicine and Child Neurology*, 14:508-510, August, 1972.

Methods of modifying spasticity are listed. The two groups of methods for objectively assessing spasticity are presented and discussed. These are: "those which measure performance, and those which attempt to quantify reflex activity." This latter group of methods is further explained by listing and describing "three basic ways of studying muscle contraction." These are: "(1) By electrical stimulation at the motor point or motor nerve. (2) By eliciting the tendon reflex. (3) By movement of a joint." Studies and procedures in this area are reviewed. Even though much progress has been made in the quantification of spasticity, two problems remain and are stated: (1) "the remarkable variation in degrees of spasticity which occurs in an individual in response to emotional and physical stimuli, and which, to a very large extent, reduces the validity of the most careful assessment" and (2) "the relief of spasticity does not necessarily infer enhanced performance."

65. Butcher, Richard E.; Vorhees, Charles V.; Kindt, Charles W.; and Keenan, William J.: "An Experimental Evaluation of Phototherapy for Hyperbilirubinemia in the Gunn Rat," *American Journal of Diseases of Children*, 123:576-578, June, 1972.

Compared in a described study was the psychological behavior of jaundiced Gunn rats given phototherapy, jaundiced Gunn rats given no such therapy, and nonjaundiced control Gunn rats. Testing procedures are described. Although the "health" of the jaundiced rats given phototherapy was found to be better than that of the untreated rats, in every psychological testing procedure used, the treated rats were indistinguishable from the untreated rats, "and both groups differed significantly from nonjaundiced controls." "The subject population and treatment parameters established in the present study may, however, represent the pattern of organ system susceptibility to be found when hyperbilirubinemia is treated by phototherapy. If so, the failure of light therapy to prevent the behavioral consequences of hyperbilirubinemia in the homozygous Gunn rat suggests that a functional impairment of the nervous system may be present even when other somatic signs indicate a benefical effect of treatment."

66. Butler, Bruce V., and Engel, Rudolf: "Mental and Motor Scores at 8 Months in Relation to Neonatal Photic Responses," *Developmental Medicine and Child Neurology*, 11:77-82, February, 1969.

A study involving 433 children at the University of Oregon site of the Collaborative Project on Cerebral Palsy, Mental Retardation, and Other Neurological and Sensory Disorders of Infancy and Childhood was conducted to determine the relationship of neonatal photic latencies, birthweight, and gestational age to mental, gross motor, and fine motor scores obtained on examination at age eight months. "All nine inter-age correlations were statistically significant. Among the neonatal variables, the correlations involving photic response latency and gestational age were about the same magnitude for each 8-month variable and were higher than the correlations involving birthweight. At 8 months, the mental test score had higher correlations with the neonatal measures than the fine motor or gross motor scores." Comments are made concerning these results.

67. Campbell, D.; Kuyek, J.; Lang, E.; and Partington, M.W.: "Motor Activity in Early Life. II. Daily Motor Activity Output in the Neonatal Period," *Biology of the Neonate*, 18:108-120, 1971. (Series: For I see #280, III see #279.)

The daily motor activity of 59 neonates was recorded by two described devices in the hospital nursery. Such activity was also monitored later at home for some of the infants. Motor activity was found to increase with age. When motor activity in the hospital was correlated with several perinatal factors, two statistically significant correlations were found. "Babies with low Apgar scores were more active on the first day of life ($t = 2.05$; $p < 0.05$); on days 2, 3 and 4 their activity did not differ from that of babies whose Apgar score was 8 or more," and "babies with a gestational age of more than 40 weeks were less active on day 1 ($F = 5.36$; $p < 0.05$); on days 2, 3 and 4 their activity did not differ from the activity of the remainder." "Positive correlations between daily activity scores indicate that stable differences between individuals' activity levels can be shown. However, changes in activity output between nursery and home, and the absence of consistent associations between the scores found in the nursery and at home imply that environmental influences have considerable effects upon levels of activity output."

68. Campbell, Stuart, and Newman, G.B.: "Growth of the Fetal Biparietal Diameter During Normal Pregnancy," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:513-519, June, 1971.

Ultrasound was used to measure the fetal biparietal diameter in 574 normal pregnancies between 13 weeks to term, with a total of 1,029 measurements made. "The range of biparietal diameter values for each week of pregnancy from 13 weeks until term (1029 measurements) was determined and longitudinal data (646 measurements) were used to illustrate the variation in growth rate according to fetal maturity, head size and weight." Results are discussed in relation to other studies and the value of this method for the detection of the small-for-dates fetus is explained.

69. Carswell, F.; Kerr, M.M.; and Dunsmore, I.R.: "Sequential Trial of Effect of Phenobarbitone on Serum Bilirubin of Preterm Infants," *Archives of Disease in Childhood*, 47:621-625, August, 1972.

Previous work in the area is reviewed. Phenobarbitone was administered for the first seven days of life as described to a group of preterm neonates having gestational ages of 36 weeks or less. Serum bilirubin levels were estimated as described and were compared with those levels in a control group of matched, randomly selected infants. "A significantly lower ($p < 0.05$) peak bilirubin level was found in the treated group. This lower level of serum bilirubin may be less liable to produce neurological damage in preterm infants."

70. Chandler, Lynette S., and Adams, Marjorie A.: "Multiply Handicapped Child Motivated for Ambulation Through Behavior Modification," *Physical Therapy*, 52:399-401, April, 1972.

Described is a behavior modification procedure used with an eight-year-old multiply handicapped boy to motivate him to initiate and extend periods of ambulation. Baseline conditions were established, and progress under behavior modification was noted. Music and candy were used as the reinforcers. When the reinforcers were withdrawn, he continued to walk independently, began to explore his environment, and continued other advances in his behavior. Reasons for choosing behavior modification in this case and suggesting the technique for use in similar cases are listed.

71. Chase, H. Peter; Welch, N. Noreen; Dabiere, Carol S.; Vasan, N.S.; and Butterfield, L. Joseph: "Alterations in Human Brain Biochemistry Following Intrauterine Growth Retardation," *Pediatrics*, 50:403-411, September, 1972.

Brain biochemistry was studied in six small-for-gestational age (SGA) infants and in ten appropriate-for-gestational age (AGA) infants in order to determine the effects of intrauterine growth retardation on this biochemistry. Cause of death in these infants and brain study methods are described. Much clinical and biochemical data are presented. The cerebellum was found "to be the area of the brain most greatly affected by intrauterine underdevelopment" with the weight of the cerebellum reduced 37 percent and the cellularity of the cerebellum reduced 35 percent in the SGA infants. "The myelin lipids, cerebroside and sulfatide, appeared to be reduced in concentration or total quantity to a greater extent than other lipids." "It would appear essential to offer the best possible postnatal care to SGA infants in order to prevent additional insults and to allow for optimal postnatal brain development. It would also appear essential to carefully follow development of central nervous system function, inasmuch as these infants are 'at risk' for developmental retardation."

72. *CIBA Foundation Symposium; Lipids, Malnutrition and the Developing Brain.* Amsterdam, New York: Associated Scientific Publishers, 1972. 326 pp.

This Symposium was held in London in October, 1971 jointly with the Nestle Foundation in memory of Sir Norman Wright. In several of the 17 papers the critical or vulnerable periods in brain development are discussed, while others are concerned with lipids, the effects of malnutrition, or myelination. Discussions of the papers by the participants in the Symposium are included as are reference lists.

73. Clarke, Cyril A., and McConnell, Richard B.: *Prevention of Rh-Hemolytic Disease.* Springfield, Ill.: C.C. Thomas, 1972. 122 pp. (American Lecture Series, Pub. No. 811.)

Described in this book are the initiation and the subsequent development of the research on this subject begun in Liverpool. Content is presented in three parts. In Part One the origin of the research from butterflies and "some background information on Rh" are explained as are the initial experiments on volunteers and the "mechanisms of protection." The "clinical applications" conducted after the experimental work are the subject of the four chapters in Part Two while the four chapters in Part Three are concerned with the "problems remaining to be solved." Ten pages of references follow.

74. Cohen, Sanford N., and Olson, William A.: "Drugs That Depress the Newborn Infant," *Pediatric Clinics of North America*, 17:835-850, November, 1970.

Maternal, placental, and fetal "factors that influence the transfer of drugs from the maternal to the fetal circulation" are discussed as is the question of "What is depression?" in terms of the Apgar score and the evaluation of neonatal behavior. "Several examples from each of the classes of drugs that are administered commonly to women during labor and which may produce neonatal 'depression'" are described.

75. Cohen, William N.: "The Prenatal Determination of Fetal Maturity by B-Scan Ultrasound; Comparison With a Radiographic Method," *Radiology*, 103:171-174, April, 1972.

Fetal biparietal diameters were determined by a described B-scan ultrasound technique in 150 pregnant patients within 30 days of delivery. These results were then compared with radiographic examinations in 37 of these women. Findings indicated that "the overall accuracy was greater with the ultrasound technique, although there were no false positives in the radiographic evaluations." The results are discussed, and it is suggested on the basis of the findings that the performance of ultrasound examination be the "primary procedure" for determining fetal maturity.

76. Cole, A.P., and Hargreaves, T.: "Conjugation Inhibitors and Early Neonatal Hyperbilirubinemia," *Archives of Disease in Childhood*, 47:415-418, June, 1972.

In this described study the attempt was made to determine "the relevance of inhibitors of bilirubin conjugation normally found in maternal serum and breast milk, to the degree of neonatal jaundice." On the sixth postpartum day breast milk and serum were obtained as described from 50 mothers, and bilirubin levels were determined in their 50 infants. The milk and serum were "examined for inhibitory activity against bilirubin conjugation in rat liver slices." "There was no relation between the amount of inhibitory substance in breast milk or serum and the degree of neonatal hyperbilirubinemia. It was observed that inhibitory activity increased in frozen breast milk but not in frozen autoclaved breast milk." Results are discussed.

77. Cole, P.V.; Hawkins, L.H.; and Roberts, D.: "Smoking During Pregnancy and Its Effects on the Fetus," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:782-787, September, 1972.

The formation of carboxyhemoglobin (COHb) from the carbon monoxide of cigarette smoke and hemoglobin is explained. This COHb "has been found in the blood of pregnant women and the fetus at birth." Reported is a study in which maternal and fetal blood COHb levels were investigated and related to maternal smoking habits. A total of 222 obstetric patients were studied of whom 93 were smokers. In 28 patients maternal and cord blood samples were obtained at delivery, and COHb and fetal hemoglobin levels were determined. All methods are described. The mean COHb levels of the nonsmoking women were found to be 1.2 percent while the mean of such levels in the women who smoked was 4.1 percent. Fetal COHb levels were found to be on the average 1.8 times higher than respective maternal levels. "Samples of fetal blood were exposed to carbon monoxide in vitro and an appreciable shift to the left of the haemoglobin dissociation curve was demonstrated. Cigarette smoking during pregnancy diminishes the oxygen carrying capacity of both fetal and maternal blood, affects maternal oxygenation by increased pulmonary venous admixture and diminishes the oxygen available to the fetus at the tissue level by its effect on fetal oxyhaemoglobin dissociation." Results are discussed, and implications are presented.

78. Connolly, Kevin: "Learning and the Concept of Critical Periods in Infancy," *Developmental Medicine and Child Neurology*, 14:705-714, December, 1972.

Much of the research that has been conducted on early learning and the concept of critical periods of behavioral development is reviewed. The effects of early experience on later behavior and the changes in learning that occur with age are discussed with pertinent studies described. The three main types of critical period phenomena that have been used in research studies are explained. These are the "optimal periods for learning, for infantile stimulation and for the formation of basic social relationships." The two different ways in which the concept of critical periods has been used are distinguished. The author then suggests that the weaker term, "sensitive period," might be more prudent than the term, "critical period." Seven conclusions are listed with the view stated "that attention should be devoted primarily to the events and processes occurring within the sensitive period rather than to its temporal characteristics."

79. Coursin, David Baird: "Nutrition and Brain Development in Infants," *Merrill-Palmer Quarterly of Behavior and Development*, 18:177-202, April, 1972.

Available information on the subject from the study of both animals and man is reviewed. The "normal growth, development, and maturation of the brain" and the effect of nutrition are explained, followed by a discussion of the importance of Vitamin B_6 deficiency in the diet for adequate brain function. Observed CNS changes caused by Vitamin B_6 deficiency in the rat are listed. Then considered are the parameters of nutritional deprivation, the effects of prenatal malnutrition on the brain, and the effects of postnatal malnutrition on the brain. Studies now in progress, the problems encountered in such studies, and the application of their findings to public policy and action in order to improve man's nutritional status are discussed.

80. Courville, Cyril B.: *Birth and Brain Damage; An Investigation Into the Problems of Antenatal and Paranatal Anoxia and Allied Disorders and Their Relation to the Many Lesion-Complexes Residual Thereto*. Pasadena, Calif.: M.F. Courville, 1971. 408 pp.

It is the particular purpose of this book as stated by the author, "to analyze in detail several of the resultant lesion-complexes which recurred so often in a series of autopsied cases of children afflicted with cerebral palsy, mental deficiency and epilepsy." In Chapter I "Birth and Its Hazards" are reviewed, and in Chapter II some of the "basic causes of" brain damage at birth are considered. The major portion of the book then deals with paranatal anoxia and the "patterns of brain lesions" which result from this process. Included are chapters concerned with atrophies, nodular cortical sclerosis, laminar cortical necrosis, cyst formation, demyelination, diffuse sclerosis, and ganglionic lesions. Many slide illustrations are included in the text, and 27 pages of references follow. Also presented is "The Courville Bibliography" which is a listing of the books, monographs, and periodical articles written by Dr. Courville.

81. Creasy, Robert K.; Barrett, Cynthia T.; de Swiet, Michael; Kahanpää, Kari V.; and Rudolph, Abraham M.: "Experimental Intrauterine Growth Retardation in the Sheep," *American Journal of Obstetrics and Gynecology*, 112:566-573, February 15, 1972.

By a described procedure in which normal maternal uteroplacental blood flow was reduced, intrauterine growth retardation was produced in pregnant ewes. The experimental fetuses were compared to control fetuses regarding body lengths and weights, organ weights, organ-to-body weight ratios, and arterial pH, Po_2 and Pco_2 values. Results are reported. It is concluded that this presented "experimental procedure with the various fetal and amniotic catheters will permit additional studies of the pathophysiology of fetal growth retardation."

82. Crichton, John U.; Dunn, Henry G.; McBurney, Annetta Karaa; Robertson, Ann-Marie; and Tredger, Enid: "Long-Term Effects of Neonatal Jaundice on Brain Function in Children of Low Birth Weight," *Pediatrics*, 49:656-669, May, 1972.

Several previous studies related to the subject are reviewed, and a controlled, long-term prospective study designed "to determine whether 'hyperbilirubinemia of prematurity' is related to subsequent impairment of intelligence to other neurological or psychological sequelae, or to abnormalities of the electroencephalogram (EEG)" is described. Thirty children having had low birth weights and maximum neonatal serum bilirubin levels above 20 mg./100 ml. (A) were compared to two matched control groups, of 30 children each, who had had low birth weights and maximum serum bilirubin levels of from 11 to 19.9 mg./100 ml. (B) and below 11 mg./100 ml. (C), respectively. Exam methods are presented as are detailed results after follow-up for from four to 11 years on intelligence scores, special psychological test scores, clinical sequelae, and electroencephalograms. "It is concluded that the effect of nonhemolytic jaundice per se on the ultimate intelligence and neurological status of LBW infants without definite kernicterus is probably small, but our findings appear to indicate that large-scale studies of pooled data from several centres with complex analysis of all associated risk factors are required to elucidate this problem."

83. Crosse, V. Mary: *The Preterm Baby and Other Babies With Low Birth Weight.* 7th ed. Baltimore: Williams & Wilkins, 1971. 290 pp.

The initial six chapters of this book are devoted to defining and describing such infants and to their care, both in the hospital and at home. In the longest chapter, Chapter 7, the complications that may occur in infants of low birth weight are then individually examined. Eleven pages of references follow this chapter. Chapter 8 is entitled "Reduction of Mortality and Morbidity Due to Low Birth Weight."

84. Cruikshank, Dwight P.: "Intrauterine Growth Retardation," *Journal of the Iowa Medical Society*, 62:633-637, December, 1972.

A case report involving intrauterine growth retardation is presented in detail, and intrauterine growth retardation is discussed with regard to its definition, etiology, diagnosis, and management.

85. Curtis, John D.; Cohen, William N.; Richerson, Hal B.; and White, Charles A.: "The Importance of Placental Localization Preceding Amniocentesis," *Obstetrics and Gynecology*, 40:194-198, August, 1972.

Fetal-maternal microtransfusion was studied in 28 pregnant women on whom 39 amniocenteses were performed as described. Among the findings was that "50% of those women with an anterior placenta that was penetrated by the needle had a remarkable increase in fetal erythrocytes." Results are discussed and it is concluded that "the threat of a significant microtransfusion in an Rh-negative unsensitized woman warrants efforts to localize and thereby avoid the placenta when amniocentesis is indicated."

86. Dahm, Lida Swafford, and James, L. Stanley: "Newborn Temperature and Calculated Heat Loss in the Delivery Room," *Pediatrics*, 49:504-513, April, 1972.

Five groups of neonates (total of 50) were studied under five environmental conditions during the first half hour of life "to evaluate heat loss due to evaporation, convection, and radiation and to determine whether reduction of the initial cold stimulus might interfere with the onset of rhythmic breathing." Infants in Group I were allowed to remain wet and exposed to room air. Infants in Group II were dried immediately and exposed to room air. Group III infants were dried and wrapped in a blanket. Group IV infants remained wet and were placed under a radiant heater. Infants in Group V were dried and placed under a radiant heater. Among the findings were that the placement of a newborn under a radiant heater did not "impede or delay the onset of breathing" and that heat loss was almost five times greater in the wet infants who were exposed to room air than in those newborns who were dried and then warmed. "In vigorous infants, the simple maneuver of drying and wrapping in a warm blanket is almost as effective in diminishing heat loss as placing them under a radiant heater. However, in depressed or immature infants who may be more asphyxiated or have reduced energy stores, radiant heat maintains body temperature while allowing access to the patient."

87. Dare, M.T., and Gordon, Neil: "Clumsy Children: A Disorder of Perception and Motor Organisation," *Developmental Medicine and Child Neurology*, 12:178-185, April, 1970.

Illustrative case histories are presented for each of three groups of clumsy children who "attended the outpatient clinics of the Children's Hospitals in Manchester." Group 1 contained 19 children of average intelligence whose clumsiness was "due to a specific developmental disorder." The 12 children in Group 2 were clumsy and also mentally handicapped. Group 3 contained four children with cerebral palsy. Discussed in relation to these groups of clumsy children are assessment, etiology, management, and points of advice to give to the child, his parents, and his teacher. The importance of early diagnosis and treatment in order to prevent secondary disturbances is stressed.

88. de la Burdé, Brigitte; and Choate, McLin S., Jr.: "Does Asymptomatic Lead Exposure in Children Have Latent Sequelae?," *Journal of Pediatrics*, 81:1088-1091, December, 1972.

Evaluated by means of described psychological tests at age four years were 70 children who had experienced proven lead exposure but who had remained asymptomatic and 72 matched control children. Methods are described. "Sixty-five per cent of the control children but only thirty-five per cent of the lead-exposed ones performed normally in all areas tested." The most significant difference between both groups was found in the fine motor and behavior areas."

89. Denhoff, Eric; Hainsworth, Peter K.; and Hainsworth, Marian L.: "The Child at Risk for Learning Disorder; Can He Be Identified During the First Year of Life?," *Clinical Pediatrics*, 11:164-170, March, 1972.

The Collaborative Study is described, and data from the Brown University collaborative center "on perinatal and infancy neurologic stress and outcome indices as related to the several measures of physical, psychologic and school functioning at age seven" are presented. There were 380 seven-year-old children who were evaluated. Most were considered to be "culturally deprived." Methods of measuring perinatal stress and neonatal and first-year outcomes are described. From 476 stress and outcome items on three described schedules, four indexes were developed. These are the Birth Stress Index, the First Year Stress Index, the Neonatal Outcome Index, and the First Year Outcome Index. Also described are measures used to determine the seven-year status of these children. Results are presented with regard to relationships found between the status at age seven years and the birth and first year stress indexes and the neonatal and first year outcome indexes. "Our findings show that major and minor neurologic signs observable at birth and in the first year are clearly associated with inefficient learning skills and poor school performance at age seven years." These findings prompted the development of an "'Outcome Index' - which may be useful in helping to identify, during the first year, the baby who is at risk for the later development of learning problems." The need for and possible beneficial uses of such an instrument of identification are discussed.

90. Dewhurst, C.J.; Beazley, J.M.; and Campbell, S.: "Assessment of Fetal Maturity and Dysmaturity," *American Journal of Obstetrics and Gynecology*, 113:141-149, May 15, 1972.

The authors evolved a definition of fetal maturity which includes two factors: "time in utero and growth support from the placenta by a combination of which a fetus obtains optimal benefit from its intrauterine existence." These two factors are each discussed with regard to methods for their assessment. The importance of knowing the duration of pregnancy is discussed as are tests for assessing such duration. The authors feel the measurement of fetal biparietal diameter by ultrasound to be "the most satisfactory method of assessing the duration of pregnancy if a measurement is taken before 30 weeks" gestation. After this time they have found radiological examination of the fetal skeleton and analysis of amniotic fluid to be most helpful in assessment. The growth support of the placenta is then considered. This can be studied in two ways: "(1) by the direct measurement of the growth actually occurring and (2) by the measurement of other placental functions from which we infer normal or abnormal growth supporting function." In cases of concern for adequate placenta function the first method is considered to be insufficient. The authors feel that "far more accurate measurement of fetal growth can be obtained by ultrasonic measurement of the fetal biparietal diameter at intervals throughout pregnancy. An additional helpful, but less accurate, method is the estrogen assay of 24-hour urine samples.

91. "Diagnosing Disease in Utero," *Medical World News*, 13:91-95, February 11, 1972.

Current uses of transabdominal amniocentesis as a technique for the prenatal detection of an abnormal fetus are discussed. Also described are recent advances made in the use of amniocentesis for the determination of fetal maturity. Several pertinent current studies in the area are briefly reported.

92. Dickey, Richard P.; Grannis, George F.; and Hanson, Fredrick W. with the technical assistance of Ann Schumacher and Sarah Ma: "Use of the Estrogen/Creatinine Ratio and the 'Estrogen Index' for Screening of Normal and 'High-Risk' Pregnancy," *American Journal of Obstetrics and Gynecology*, 113:880-886, August 1, 1972.

In order to determine their value "in detecting unsuspected high-risk early in the course of apparently normal pregnancy," the estrogen/creatinine ratio and the "estrogen index" were both determined as described in the urine of 483 normal pregnant women and 80 high-risk pregnant women. Repeated specimens were obtained in most cases at four-week intervals during pregnancy beginning at weeks 28-30. Although the estrogen/creatinine ratio was found to be "slightly more effective than the estrogen index in predicting the occurrence of low-birth-weight infants," the use of both methods was found to be most effective, with 70.5 percent of low-birth-weight infants predicted in the group of normal pregnancies when both ratios were used. Results are presented regarding the abilities of the two ratios to predict low birth weight at the various gestational ages and their value in the high-risk cases. "The results of the present study suggest that routine screening of normal pregnancies will detect a high percentage of instances where a low-birth-weight infant will be born but will not detect the future occurrence of problems such as toxemia, abruptio placentae, or premature labor. In clinically high-risk patients where such problems have additional likelihood of occurring, serial 24 hour estrogen determinations should be performed." Implications of the results are discussed.

93. Dinnage, Rosemary. *The Handicapped Child; Research Review*. Volume 1. London: Longman in association with The National Bureau for Co-operation in Child Care, 1970. 414 pp.

This volume contains a review of the literature in the five areas of perinatal research, minimal brain dysfunction, specific learning disabilities, cerebral palsy, and epilepsy. In Section 1 the "aims and methods" of the review are explained. In Section 2 the literature in the above areas is reviewed and discussed in essay form. Presented in Section 3 are "abstracts of completed research projects" in the five areas. Each area is arranged chronologically by date of publication. Each abstract contains information on such aspects of the research project as its purpose, scope, sample, methods, findings, conclusions, etc. This is followed in Section 4 by an annotated bibliography of books and periodical articles presented in 12 parts with each part arranged chronologically by date of publication. Section 5 contains an "annotated list of ongoing research projects in the United Kingdom," and Section 6 contains a similar list for the U.S.A. In an appendix are listed the locations of the periodicals. There is also a composite bibliography and index containing the entries of Sections 3 and 4 arranged in alphabetical order by author. Volume II in this series consists of a similar literature review on the subjects of visual impairment, hearing impairment, speech disorders, and other physical handicaps.

94. Dobbing, John, and Sands, Jean: "Vulnerability of Developing Brain. IX. The Effect of Nutritional Growth Retardation on the Timing of the Brain Growth-Spurt," *Biology of the Neonate*, 19:363-378, 1971. (Series: For I see #96, II see #349, III see #6, IV see #350, V see #7, VI see #351, VII see #95, VIII see #5.)

In order to demonstrate the belief "that there exists a once-only opportunity to construct a complete brain, and that if this opportunity is missed it is not possible to remedy the situation later," growth-retarded developing rats were studied with regard to the body weight and length, the accumulation of fresh brain weight, the brain DNA concentration, and the brain cholesterol concentration. Results were compared to those of a control group, and all rearing and study methods are described. The results confirm the hypothesis stated previously. "It is, therefore, probably incorrect to state that the brain is more vulnerable (in this sense) the earlier it is growth retarded, although this is often claimed. There is a period before the brain growth-spurt as well as afterwards which is less sensitive than the transient growth-spurt period." "Ultimate deficits in adult brain resulting from mild growth retardation during the brain growth-spurt are explained" on the basis of the results.

95. Dobbing, John; Hopewell, J.W.; and Lynch, Anthony: "Vulnerability of Developing Brain. VII. Permanent Deficit of Neurons in Cerebral and Cerebellar Cortex Following Early Mild Undernutrition," *Experimental Neurology*, 32:439-447, September, 1971. (Series: For I see #96, II see #349, III see #6, IV see #350, V see #7, VI see #351, VIII see #5, IX see #94.)

"Mild nutritional growth restriction" was induced as described in developing rats. At maturity they were killed and compared to adequately fed rats with regard to brain characteristics. Dissection, histological and cell counting methods are explained. Results indicated that "a selective permanent reduction of weight and cell number in the cerebellum" and "permanent deficits in certain cerebral cortical neurons as well as those in the granular layer of the cerebellum" occurred in the undernourished rats. Results are discussed.

96. Dobbing, John; Hopewell, J.W.; Lynch, Anthony; and Sands, Jean: "Vulnerability of Developing Brain. I. Some Lasting Effects of X-Irradiation," *Experimental Neurology*, 28:442-449, September, 1970. (Series: For II see #349, III see #6, IV see #350, V see #7, VI see #351, VII see #95, VIII see #5, IX see #94.)

The heads of four seven-day-old rats were exposed to X-irradiation as described while five of their littermates were not, thus serving as controls. All were sacrificed at age 7.5 months, and their brains were examined. The treated rats showed no physical or behavioral abnormalities before they were killed. However, among the presented findings was the fact that "there was a large, selective, residual deficit of cerebellar weight amounting to 61% of controls." "The deficit in number of cells was somewhat less than the deficit in weight, leading to a substantial increase in its cellularity." Results are discussed, and implications are presented. "The results provide yet another example of the differential susceptibility of the cerebellum when its growth is interfered with at a time when it is normally growing rapidly. Permanent deficits have been induced at a late stage of development corresponding approximately to the perinatal period of human brain growth."

97. Doshi, Narendra S., and Ansari, Amir H.: "Amniotic Fluid Cytology for Assessment of Fetal Maturity," *Ohio State Medical Journal*, 68:363-366, April, 1972.

Amniotic cytology studies were conducted on 43 samples of amniotic fluid from 37 patients in order to determine fetal maturity. Fat cell count and the presence or absence of fat cell clusters and free liquid droplets were noted. The results indicated that amniotic fluid cytology is a useful test in estimating fetal maturity.

98. Drillien, C.M.: "Abnormal Neurologic Signs in the First Year of Life in Low-Birthweight Infants: Possible Prognostic Significance," *Developmental Medicine and Child Neurology*, 14:575-584, October, 1972.

Three hundred children who had had birthweights of 2000 g. or less were studied during their first year of life in an attempt to identify "those who might have minor impairments at school age." Abnormal neurological signs seen during the first year in these children are described. Included among these was "a syndrome of transient abnormal neurologic signs ('transient dystonia')." The typical forms of behavior seen by the mother and the examination findings of this syndrome are presented. "The incidence of transient dystonia increased with decreasing birthweight and was increased in males with birthweights of 1500 g or less and in small-for-dates infants." The abnormal symptoms seen in this syndrome gradually disappeared by the age of eight to 12 months in 60 percent of the infants displaying the symptoms. Data are given on the incidence of abnormal neurological symptoms in this group of 300 children by birthweight, by sex, and by intrauterine growth. Information is also presented on the relationship found between these abnormal neurological signs and the later status of the children. "At two and three years of age, children who had previously been dystonic were much more likely to have mental impairment and hyperactive behavior than were children of similar birthweights who had not exhibited abnormal neurologic signs or had shown minor signs only. It is suggested that transient dystonia in the first year of life may be indicative of minimal brain dysfunction and be prognostic of this syndrome at later ages."

99. Drillien, C.M.: "Aetiology and Outcome in Low-Birthweight Infants," *Developmental Medicine and Child Neurology*, 14:563-574, October, 1972.

Nearly 300 infants having had birthweights of 2000 g. or less were followed to between one and three years of age for the purpose of relating their outcome "to the aetiologic factors which were presumed to be primarily responsible for premature delivery and intra-uterine growth retardation." An attempt was made to determine for each baby at birth the cause of his low birth weight. The findings indicated that five out of six of the babies could be placed in one of the following three etiologic categories: "(1) Those who have been affected by adverse factors in early gestation and who have the highest risk of moderate or severe handicaps. (2) Those subjected to adverse factors in late pregnancy, who are less likely to have major handicaps but may show an increase in mild degrees of mental retardation and minor neurological abnormalities. (3) Those who are prematurely delivered 'by accident,' are potentially normal at birth and whose later status depends largely on postnatal care." Characteristics of these categories are described, and information on the status of the infants at their final examination is presented.

100. Drillien, C.M.: "Later Development and Follow-Up of Low Birth Weight Babies," *Pediatric Annals*, 1:44-46+, October, 1972.

The need is stated for "comparative follow-up studies of infants nursed in centers with different policies in an attempt to identify those areas in pre- and postnatal management which appear to affect outcome." Discussed are the improved survival rates of low birth weight infants due to intensive care units and the various inconsistencies in the recording of data which reduce the value of mortality and survival rats as predictors of favorable or unfavorable management conditions. Respiratory problems, biochemical disturbances such as hyperbilirubinemia and hypoglycemia, and nutritional and temperature control problems are each discussed in relation to the improvements in their progress which can be attributed to better postnatal management. Also considered are the minor impairments, such as minimal cerebral dysfunction, that have been found to be associated with low birth weight children. The premature infant is distinguished from the small-for-date infant, and the etiology of low birth weight is discussed with recent studies by the author reviewed. Conclusions are presented.

101. Eisenberg de Smoler, Paulina, and Karchmer, Samuel: "Four Leads in Fetal Electrocardiography," *American Journal of Obstetrics and Gynecology*, 112:239-245, January 15, 1972.

Described is a fetal electrocardiographical technique which might be employed to detect "chronic fetal distress" early in pregnancy. The fetal electrocardiogram is recorded by means of a preamplifier with filters and four extrauterine leads. The equipment and its employment are described. Results with 100 cases, recorded at various stages of pregnancy, are discussed. Three questions regarding the use of four leads are presented and answered. These are: "(1) What is the incidence of false negatives if we record only a single lead and which one gives less negative tracings? (2) How often is the fetal complex present in all leads? (3) Is it important to record the fetal electrocardiogram invariably in all 4 leads?" It is felt that this "is a good procedure to control at least one parameter of the fetal heart current starting at an early stage of pregnancy." "It is an easy procedure, is not very costly, and has the advantage of not being harmful to mother or fetus." New applications are mentioned, and future uses are analyzed.

102. Elder, M.G.: "Serum Heat-Stable Alkaline Phosphatase Levels in Normal and Abnormal Pregnancy," *American Journal of Obstetrics and Gynecology*, 113:833-837, July 15, 1972.

In order to determine the value of serum heat-stable alkaline phosphate (HSAP) estimations in assessing fetal prognosis, 698 such estimations were conducted on 196 obstetric patients with the method used described. The results indicated that HSAP estimations would be "of no value in the prediction of hypertension in pregnancy, dysmaturity, or fetal distress"; however, in cases of perinatal death the HSAP levels were high with these high values "occurring in the earlier part of the third trimester."

103. Ely, Karen P.; Healy, Alfred; and Smidt, Gary L.: "Mothers' Expectations of Their Child's Accomplishment of Certain Gross Motor Skills," *Developmental Medicine and Child Neurology*, 14:621-625, October, 1972.

One hundred post-partum women, who were divided into four groups according to socio-economic status and the number of children they had previously "raised or cared for from infancy," were interviewed after the delivery of their child with regard to the ages at which they would estimate their child "would first perform each of six selected gross motor skills." The format of the interview and the findings are presented. "The results of this study indicate that most mothers, regardless of socio-economic status or number of previous children, are generally aware of the ages at which early milestones of gross motor development appear. They are thus potentially capable of detecting prolonged delays in gross motor development which may be indicative of a disorder requiring treatment. The results also suggest that the majority of mothers would seek advice from the person most qualified to help them, a medical doctor, if they were concerned about their child's development."

104. Emanuel, Irvin: "Some Preventive Aspects of Abnormal Intrauterine Development," *Postgraduate Medicine*, 51:144-148, January, 1972.

Statistics are reviewed, and relevant factors in abnormal intrauterine development and low birthweight are discussed. Among these are genetic defects, maternal age, maternal parity, cigarette smoking, infections, drugs, poverty, inadequate maternal nutrition, out-of-wedlock births, and a deprived early environment of the mother. It is concluded that the provision of medical care alone will not solve the problem of abnormal intrauterine development. "Rather, the resolution of this problem awaits a more thorough understanding of the relevant factors, both medical and socio-cultural, and a serious commitment of society to preventive programs based on this understanding."

105. Engel, Rudolf, and Fay, Warren: "Visual Evoked Responses at Birth, Verbal Scores at Three Years, and I.Q. at Four Years," *Developmental Medicine and Child Neurology*, 14:283-289, June, 1972.

A study involving children in the Collaborative Child Development Project at the University of Oregon Medical School was conducted to determine the possible relationship between neonatal visual evoked responses (VER), speech and language scores at three years of age, and Stanford-Binet intelligence scores at four years of age. Testing methods and results are described. "Results from 828 children showed that articulation of initial and final consonants at three years was significantly greater in the children who had shown shorter latencies of evoked potentials in the neonatal period. No significant correlation was found between neonatal evoked response latency, the measure of verbal comprehension at three years and IQ scores at four years. These findings offer further support for use of the neonatal visual evoked response as a predictor of subsequent motor development, but not of symbolic or intellectual development." These results and conclusions are discussed.

106. Enlander, Derek: "Amniotic Fluid Indicators of Fetal Maturity," *Obstetrics and Gynecology*, 40:605-606, October, 1972.

In order "to identify those measures of fetal renal function that might undergo significant change with gestational age," amniotic fluid was obtained and analyzed for a number of parameters as described from 58 women who were to have immediate therapeutic abortions during the second trimester of pregnancy (Group A) and from 32 women during normal term delivery (Group B). Uric acid concentration was found to be significantly higher in the Group B women with the values in the two groups being completely separated. It is concluded that "this study demonstrates that the level of uric acid in amniotic fluid may be used as a criterion in estimating gestational age, and confirms the finding of others that there is a positive relationship between amniotic fluid creatinine levels and fetal development."

107. Ente, Gerald; Lanning, Edward W.; Cukor, Peter; and Klein, Richard M.: "Chemical Variables and New Lamps in Phototherapy," *Pediatric Research*, 6:246-251, April, 1972.

Reported are in vitro studies conducted "to measure the effects of varying concentrations of albumin and flux on the photodecomposition of bilirubin." The effects of experimental lamps were also studied. The apparatus used, the methods of preparing the albumin and bilirubin, and the procedures are described. Under conditions of constant distance and constant flux, the experimental lamps used were "found to be 15-20% more effective than the high intensity blue lamps used in clinical phototherapy," and the cool white fluorescent lamps were "found to be only half as efficient as the blue lamps." When the concentration of albumin was increased, the reaction rate of photodegeneration on bilirubin was found to decrease. "The effect of light flux was such that continuous use of the lowest practical level is to be recommended." Results are discussed.

108. Fairweather, D.V.I.; Millar, M.D.; and Whyley, G.A.: "Factors Influencing the Spectrophotometric Evaluation of Liquor Amnii," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:433-440, May, 1972.

The use of spectrophotometric examination of liquor amnii to predict the presence and severity of fetal hemolytic disease is discussed. Liquor amnii samples were obtained in order to investigate factors that may influence the spectrophotometric examination of such samples. Four described methods of clarification of the liquor were examined and compared as were seven described methods of spectrophotometric analysis of the liquor. Results are presented concerning the effect of storage of the liquor amnii on the liquor bilirubin content, the effect of exposure to light on the liquor bilirubin content, the "effect of turbidity on spectrophotometric analysis," and "the comparison of results after centrifugation and filtration" by the described methods. It is concluded to be "essential to follow the exact method originally described for each method of expression of liquor bilirubin content when using prediction graphs or tables to indicate severity of rhesus haemolytic disease."

109. Favier, J., and Helfferich, M.: "The Effects on the Fetus of an Abnormal Contraction Pattern in the Induction of Labor With Oxytocin," *American Journal of Obstetrics and Gynecology*, 112:1107-1111, April 15, 1972.

Intrauterine pressure and fetal heart rate were continuously monitored and the acid-base balance of the fetal blood was measured repeatedly in 29 pregnant women in whom labor was induced as described with oxytocin infusion and in 47 pregnant women who were delivered spontaneously at term (controls) in order to investigate "whether an abnormal contraction pattern could occur at the beginning of an induction by means of oxytocin, and, if this was the case, whether a deterioration of the intrauterine condition of the fetus could be demonstrated." "An increased basal tone ($\geqslant$ 20 mm. Hg.), accompanied by prolonged, irregular contractions of varying intensity, occurred in the beginning of the first stage of labor" nine times in the group that received oxytocin and four times in the control group. "It seems that during this period there may be a deterioration in the acid-base balance of the child." Implications are discussed.

110. Finnström, Orvar: "Studies on Maturity in Newborn Infants. II. External Characteristics," *Acta Paediatrica Scandinavica*, 61:24-32, January, 1972. (Series: I and III cited in previous volume. For IV see #111, V see #45, VI see #112.)

Described is a method of estimating neonatal maturity based on the evaluation of the following 12 external characteristics: breast size, nipple formation, skin opacity, scalp hair, hair-forehead border, eyebrows, ear cartilage, fingernails, xiphoid process, external genital organs, plantar skin creases, and pupillary membrane. Results of evaluating maturity using eight of these characteristics in two series of neonates are presented. Maturity scores were derived from evaluating these characteristics and were found to correlate well with gestational age. Much data on the statistical analysis process is also presented. "The prediction interval for estimating gestational age on the basis of the mean value of the maturity score was ±24.0 days." "Small-for-gestational-age infants had significantly lower mean maturity scores than appropriate-for-gestational-age infants of the same mean gestational age. They had higher scores than pre-term appropriate-for-gestational-age infants of the same birth weight. Dysmature infants (external signs of dysmaturity) probably have lower scores than expected for their gestational age."

111. Finnström, Orvar: "Studies on Maturity in Newborn Infants. IV. Postnatal Radiological Examination of Epiphyseal Centers," *Neuropädiatrie*, 3:119-128, October, 1971. (Series: I and III cited in previous volume. For II see #110, V see #45, VI see #112.)

The epiphyseal centers in the distal femur, proximal tibia, calcaneous, and talus were radiologically measured on both body halves of 172 newborns of various gestational ages. Results of statistical analyses are presented. "Even when the size of the centers and not only their presence was considered, the method gave no better estimation of gestational age than did birth weight." Small-for-gestational-age newborns were found to "have a delayed ossification of epiphyseal centers." The results of other investigators in this area of study are discussed. "It can be concluded that methods other than radiological estimation of epiphyseal centers are preferable for postnatal assessment of gestational age."

112. Finnström, Orvar: "Studies on Maturity in Newborn Infants. VI. Comparison Between Different Methods for Maturity Estimation," *Acta Paediatrica Scandinavica*, (Series: I and III cited in previous volume. For II see #110, IV see #111, V see #45.)

The following five methods for estimating neonatal maturity were compared using two groups of described newborns consisting of 174 infants of known gestational age and 28 infants of unknown gestational age, respectively: anthropometric measurements, external characteristics, neurological tests, postnatal examination of epiphyseal centers, and motor conduction velocity. Statistical methods are presented in previous papers, but the linear regression equations for estimating gestational age by the various methods are given in this paper. The assessment of external characteristics and the use of neurological tests were found to be "the best single methods" to estimate maturity. In small-for-gestational-age infants all methods were found to underestimate gestational age except motor conduction velocity. "By combining methods, the precision of estimating gestational age increases. Useful combinations are any two or all of the following: external characteristics, neurological tests and head circumference." Various "factors limiting the accuracy of models used for estimating gestational age" are discussed. The methods used by the author to estimate gestational age are compared as are the results of this study with the results of other pertinent studies.

113. Fiorentino, Mary R.: *Normal and Abnormal Development: The Influence of Primitive Reflexes on Motor Development.* Springfield, Ill.: C.C. Thomas, 1972. 64 pp.

Photographically illustrated in this book are the normal patterns of reflex development and the abnormal postural reflexes seen in the cerebral palsied child. Photographs of infants from age six days through age 14 months display the maturation and integration present in normal motor development. Then photographs are shown of cerebral palsied children to demonstrate the reflexes which "have been found to be most prevalent in contributing to the lack in motor development." In the final chapter, entitled, "Early Diagnostic Signs," a six-month-old infant is seen in a series of pictures to illustrate normal age-level development but "a delay in certain postural reactions which could be an indication of mild hemiplegia." This book is considered by Dr. Myron E. Shafer in the "Foreward" to be "invaluable in the early diagnosis of the cerebral palsied child under one year of age." A bibliography is included.

114. Fitzhardinge, P.M., and Steven, E.M.: "The Small-for-Date Infant. I. Later Growth Patterns," *Pediatrics*, 49:671-681, May, 1972. (Series: For II see #115.)

The growth patterns of 96 full-term small-for-date infants were followed for a minimum of four years. Infant selection criteria and follow-up methods are described. Results were compared to those found for two described control groups. Results are presented with regard to the growth of the study group as a whole, the growth of the infants in the group that were most severely underweight at birth, the velocity of the growth, and other factors that might contribute to growth. Growth in all areas studied was found to be generally retarded with the mean weight and height at ages four to six years located "between the 10th and 25th percentiles (of the Stuart graphs) with 35% below the 3rd and only 8% above the 50th percentiles." The most severely affected infants and those who were less affected showed no difference with respect to height and weight at age six years. "The growth pattern of the SFD children was similar to the normal child with the greatest velocity of growth occurring in the first 6 months." Results are discussed and interpreted.

115. Fitzhardinge, P.M., and Steven, E.M.: "The Small-For-Date Infant. II. Neurological and Intellectual Sequelae," *Pediatrics*, 50:50-57, July, 1972. (Series: For I see #114.)

The same 96 full-term small-for-date infants as were studied in Part I of this series of articles were prospectively studied for a minimum of five years "to determine the incidence and type of neurological and intellectual sequelae." Patient selection methods and methods of evaluation are described. Results of evaluation are presented in the areas of speech, hearing, vision, CNS, and intellectual functioning. With regard to speech, 33 percent of the boys and 26 percent of the girls had some problem. "Hearing and vision were not appreciably affected." With regard to CNS abnormalities, one percent of the study group had cerebral palsy, and six percent had convulsions. Minimal brain damage was diagnosed in seven boys and nine girls, and 59 percent of the boys and 69 percent of the girls were found to have EEG abnormalities as described. The average male IQ was 95, the average female IQ was 101, and 50 percent of the boys and 36 percent of the girls were considered to be displaying poor school performance. These findings and others were compared to those found in a control group of like-sexed, normal birth weight siblings, and results of this comparison are presented throughout. "No relationship could be drawn between neurological and intellectual defects and the degree of intra-uterine growth retardation."

116. Foulds, J.W., and Pennock, C.A.: "Amniotic Fluid Creatinine: An Unreliable Index of Fetal Maturity," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:911-915, October, 1972.

Amniotic fluid samples were obtained at 32 weeks or more of gestation in 306 women, and amniotic fluid creatinine values were measured as described. Although the levels tended to progressively rise as gestation advanced, the scatter of values "was so wide and so much overlap occurred that the method must be regarded as unreliable for estimating maturity in clinical practice." Results are discussed and compared to those of other pertinent studies.

117. Fox, Howard A.: "Newborn Special Care; The High Risk Baby," *Pediatric Annals*, 1:55, 57-59, October, 1972.

Recent progress and problems in this area are discussed. Specific topics considered include the development of Newborn Special Care Units in many medical institutions, the organization and design of such Units, modern therapeutic measures and their application, and the transportation of high risk neonates.

118. Fox, Jacob H.; Fishman, Marvin A.; Dodge, Philip R.; and Prensky, Arthur L.: "The Effect of Malnutrition on Human Central Nervous System Myelin," *Neurology*, 22:1213-1216, December, 1972.

The current literature on the subject is reviewed. Myelin from the brains of three described malnourished babies, ages 4, 12, and 22 months, was isolated and compared in chemical composition to the myelin from the brains of three control babies, ages 4, 12, and 16 months. Methods are described. Results revealed "no significant differences in the composition of the myelin from the brains of malnourished and control children of comparable ages." These results are discussed in relation to results from previous studies. "The finding of normal composition of the myelin from malnourished human brains indicates that the low content of white matter lipids previously noted can best be explained by a decreased amount of chemically normal myelin rather than by an alteration in the composition of the membrane." It is suggested that "the deleterious effects of undernutrition on cerebral development may be the result of the insult on those processes that precede myelination."

119. Fox, Sheila: "Handicapped and Under Five," *Special Education*, 60:19-22, September, 1971.

Discussed is the formation, development, and operation of a playgroup for handicapped children. The first step in its organization was the appointment of a steering committee. Donations and volunteers were sought and received. In the 18 months of operation 32 handicapped children, ages nine months to six and one-half years, have attended. Activities in the three morning per week sessions are described. The process of integrating non-handicapped children into the group and relevant problems are explained.

120. Fraňková, S.: "Effect of Early Dietary and Sensoric Reduction on Behaviour of Adult Rats," *Activitas Nervosa Superior*, 14:1:1-7, 1972.

From birth to weaning four groups of rats were placed under one of the following nutritional and stimulational conditions: (1) a basal diet and basal stimulation conditions, (2) a low protein diet and basal stimulation, (3) a basal diet and an environment of reduced sensory stimulation, and (4) a low protein diet and an environment of reduced sensory stimulation. At age 21 days, the rats were weaned, and all were placed on the basal diet. The rats were then periodically weighed, and exploratory activity was tested for four consecutive months under two different, described experimental sets, one of which included the injection intraperitoneally of amphetamine on the 125th day of life. "Both nutritional (protein) and sensoric restriction during the suckling period produced retardation of growth and lower spontaneous exploratory activity in adult age.

There were no significant differences between the behaviour of the animals sensorically restricted and provided with a well balanced diet and the group fed a low protein diet and maintained in standard living conditions. The growth was suppressed more by nutritional than by sensoric deprivation. All early deprived rats appeared to be more sensitive to amphetamine."

121. Fraser, I.D., and Tovey, G.H.: "Estimation of Antibody Protein in Amniotic Fluid to Predict Severity in Rhesus Haemolytic Disease," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:981-984, November, 1972.

A total of 496 amniotic fluid samples were obtained from 260 patients with rhesus incompatibility and were analyzed "using rhesus antibody quantitation in amniotic fluid samples as a supplement to Liley's spectrophotometric method." Using this described procedure, "the accuracy of prediction of severity of rhesus haemolytic disease has been improved from 77 to 90 per cent." "When the antibody protein level was less than 0.2 μg. per ml. the cord blood haemoglobin value was more than 11.0 g. per 100 ml. However, when the antibody protein value was greater than 0.6 μg. per ml. the cord blood haemoglobin level was less than 8.0 g. per 100 ml. In 32 of 34 rhesus (D) negative babies the amniotic fluid contained negligible amounts of anti-D." Results are discussed and compared to those of other studies.

122. Fraser, I.D.; Tovey, G.H.; Lockyer, W.J.; and Sobey, D.F.: "Antibody Protein Levels in the Maternal Serum in Rhesus Iso-immunization," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:1074-1079, December, 1972.

In order to determine if "quantitation of rhesus antibodies by the 'Auto-Analyser' technique could provide a more accurate means of assessing the severity of disease in the baby" than would a manual antibody test, both methods were conducted on maternal serum in 600 rhesus incompatible pregnancies. Methods are described. Also an attempt was made "to find out whether serum antibody protein levels before 35 weeks of gestation could accurately indicate the need for examination of the amniotic fluid." The automated method was found to be the better method for evaluating rhesus antibodies. By using the method the number of women who were recommended for amniocentesis was reduced. A good correlation was found "between the serum antibody protein level before 35 weeks of gestation and the severity of haemolytic disease in the baby."

123. Frost, Harold M.: "Cerebral Palsy; The Spastic Crouch," *Clinical Orthopaedics and Related Research*, 80:2-8, October, 1971.

The characteristics of the spastic crouch are reviewed, the conventional orthotic and surgical approachs to therapy for this deformity are described, and the methods by which it is managed at the Cerebral Palsy Clinic at Henry Ford Hospital in Detroit are explained. The general approach at this Clinic is to accept "the spastic crouch as more desirable than any currently available alternative." "While accepting the crouch, passive stretching and surgical releases may help to prevent and/or correct the development of major structural deformities and contractures.

124. Frost, Harold M.: *Orthopaedic Surgery in Spasticity.* Springfield, Ill.: C.C. Thomas, 1972. 216 pp. (Orthopaedic Lectures, Vol. I.)

In this monograph the subject is discussed in both a theoretical and a practical manner. In the first part of this volume a view of neuromuscular control is outlined as are the underlying principles and goals of this view. Practical application is emphasized in Chapters IX through XXII with the therapeutic experience of the author and his colleagues with spastic patients at the Crippled Children's Clinic and the Cerebral Palsy Clinic of Henry Ford Hospital, Detroit, described. Chapter IX deals with a system devised to grade cases according to the severity of the spasticity. Subsequent chapters are devoted to spastic hammer toes, spastic equinus, spastic heel varus and forefoot adductus, spastic rocker-bottom foot, spastic back knee, spastic crouch, spastic internal femoral torsion, spastic hip subluxation, upper extremity surgery for spasticity, spastic wrist pronation, spastic wrist flexion, spastic finger flexion, and miscellaneous factors. Within each chapter the individual disability is defined, its pathogenesis is described, the process of diagnosis is discussed, and the treatment process is explained. Six pages of references follow the text.

125. Fujikura, Toshio, and Froehlich, Luz A.: "Organ-Weight/Brain-Weight Ratios as a Parameter of Prenatal Growth: A Balanced Growth Theory of Visceras," *American Journal of Obstetrics and Gynecology*, 112:896-902, April 1, 1972.

Organ weights were determined in over 2000 cases of perinatal death in order to calculate organ-weight/brain-weight ratios and then to "attempt to detect subtle weight changes of internal organs in selected conditions of known abnormalities in growth such as diabetes, erythroblastosis, toxemia, and twinning." The results indicated that organs tend to increase in weight proportionately at constant rates during gestation but with some subtle changes under abnormal conditions. "The thymus was small in infants with erythroblastosis; the lungs were large in infants of diabetic mothers; and the lungs and kidneys were small in infants of toxemic mothers. The liver was small in Negro male infants and twins, two groups known to have high perinatal mortality rates. Brain weights in infants with diabetes, toxemia, and erythroblastosis were within the normal expected range."

126. "A Further Step in Assessing Fetus," *Medical World News*, 13:29:46-47, August 4, 1972.

A method in which a biochemical assay is made of amniotic fluid in order to "determine if 'functional development (of the fetus) is predictive of survival'" is described. The method was developed by Dr. Tom Lind and his associates at the Princess Mary Maternity Hospital in Newcastle-on-Tyne. "The scoring system measures the creatinine concentrations in the amniotic fluid, the difference between urea levels in the maternal plasma and the amniotic fluid, and observes the characteristics of epidermal cells shed into the fluid." The process and basis on which Dr. Lind developed the method are explained.

127. Gatev, V.: "Role of Inhibition in the Development of Motor Co-ordination in Early Childhood," *Developmental Medicine and Child Neurology*, 14:336-341, June, 1972.

Antagonist and agonist inhibitions were studied and electrically recorded in the biceps and triceps muscles during active movement of the elbow joints in a group of children ages one month to three years in order "to determine their role in the development of motor co-ordination mechanisms." The children were divided into three subgroups according to age. Procedures and results according to subgroup are presented. "The antagonist inhibition phenomenon was elicited both in infants and toddlers; it was delayed and less frequent in the infants, but in children from 2 1/2 - 3 years of age it was elicited more frequently and was often anticipatory. The agonist inhibition phenomenon (described by the author) was not elicited in infants, and in children from 2 1/2 - 3 years it was seldom and imperfectly elicited. It is concluded that both antagonist and agonist inhibitions are basic mechanisms in the development of motor co-ordination in childhood."

128. Gauthier, Cajetan, Jr.; Desjardins, Paul; and McLean, Frances: "Fetal Maturity: Amniotic Fluid Analysis Correlated With Neonatal Assessment," *American Journal of Obstetrics and Gynecology*, 112:344-350, February 1, 1972.

Various methods of estimating fetal maturity are reviewed. In order to determine the accuracies of assessing fetal maturity and weight by the creatinine level in amniotic fluid and by the percentage of orange-staining cells in amniotic fluid, 139 amniotic fluid specimens were obtained from 126 pregnant patients, the majority of whom had some type of obstetric complication. The creatinine level and the percentage of cells in the amniotic fluid that stained orange with Nile blue were determined. Then in various numbers of these cases the values were correlated with birth weight and with gestational age which was determined by maternal history and by "use of the clinical assessment of the neonate within 24 hours of birth." The creatinine level was found to be "more accurate for both gestational age and baby weight than the percentage of orange-staining cells." "When the gestational age is around 36 weeks, creatinine values are reliable; if the gestational age is 38 weeks or more, the orange-staining cell count is more accurate." The clinical method used to determine gestational age was found to be "very accurate and helpful."

129. Gerber, Sanford E.: "Biomedical Technology and the Detection of Birth Defects," *Rehabilitation Literature*, 33:322-325+, November, 1972.

Discussed is the screening for and detection of birth defects by biomedical means with emphasis placed on the detection of congenital deafness. Deafness is considered to be a good example of birth defect to discuss because of its inability to be readily observed in the neonate and because other anomalies may often be discovered while the hearing of the neonate is being assessed. Three technics of assessment are considered: "the measurement of respiratory activity, the measurement of brain wave activity, and the measurement of cardiovascular activity." Emphasized is the need for the early detection of birth defects through the use of newborn screening.

130. Gershanik, Juan J.; Levkoff, Abner H.; and Duncan, Robert: "The Association of Hypocalcemia and Recurrent Apnea in Premature Infants," *American Journal of Obstetrics and Gynecology*, 113:646-652, July 1, 1972.

Twenty-seven neonates having birth weights of under 1,751 grams were studied with regard to serum total calcium values from birth to age 48 hours, the occurrence of recurrent apnea, and numerous other factors. The care of the neonates and the study methods are described. In 14 of these newborns recurrent apnea, as defined, developed, while in 13 no apnea occurred. The infants with recurrent apnea were found to have a minimum mean calcium value of 5.8 mg. per 100 ml. and occurred at age 31 hours while such a value in those infants with no apnea was 8.3 mg. per 100 ml. and occurred at age 35 hours. The infants with recurrent apnea were also found to have "consistently higher serum phosphorus levels" and "consistently lower" serum total protein levels. Gestational age, birth weight, and Apgar scores were also lower in these babies. Implications are discussed.

131. Gingell, Robert L.; Grant, John A.; and Cornblath, Marvin: "A Hand-Sort Punch Card System for the Evaluation of a Nursery Population," *Journal of Pediatrics*, 81:528-531, September, 1972.

Such a simple system is described in which basic data are recorded and made easily retrievable. The system allows certain groups of obstetric and neonatal patients to be identified, studied, and compared and also allows relationships between categories to be determined. Results of usage of data accumulation by the method over a six-month period at the University of Maryland Hospital are presented. Advantages and disadvantages of the system are discussed.

132. Girling, D.J.; Scopes, J.W.; and Wigglesworth, J.S.: "Babies Born Alive After Intrauterine Transfusions for Severe Rhesus Haemolytic Disease," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:565-574, June, 1972.

Fifty-two babies, who had experienced intrauterine transfusion for severe rhesus hemolytic disease, were studied and followed. Described are the babies; the treatment given them; the problems encountered with the babies at birth, including asphyxia, hydrops fetalis, anemia, trauma, and hypothermia; the problems encountered during the neonatal period, including respiratory failure, hypoglycemia, exchange transfusion, necrotizing enterocolitis, neurological abnormalities, protracted jaundice, bleeding diathesis, and other problems; and problems seen at follow-up, including anemia, neurological problems, cytomegalovirus infection, and serum hepatitis. Results are discussed. "Of the 52 babies reported in this paper born alive after intrauterine transfusion 30 have survived, including 6 who were hydropic, and only 3 show evidence of permanent neurological damage."

133. Gluck, Louis: "Design of a Perinatal Center," *Pediatric Clinics of North America*, 17:777-791, November, 1970.

Described in this paper are "the population at risk" which such a center is designed to serve, the steps involved in designing such a center, the sub-programs within the unit and their development, an example of a plan to be submitted to an architect, and several of the special features contained in a perinatal unit, including "modular storage walls and overhead mechanical facility modules."

134. Goebelsmann, Uwe; Thorneycroft, Ian H.; Nakamura, Robert M.; and Mishell, Daniel R., Jr.: "Estriol in Pregnancy. I. A Radioimmunoassay for Urinary Estriol," *American Journal of Obstetrics and Gynecology*, 112:802-806, March 15, 1972.

The materials and procedures involved in a newly developed radioimmunoassay technique for measuring urinary estriol in pregnancy are presented. When compared to the colorimetric method, this described method was found to be as precise and accurate. The radioimmunoassay procedure "offers considerable time savings, especially when large numbers of E_3 assays are carried out, and thus should decrease the expense of performing reliable estriol assays on a daily basis.

135. Goff, Barbara: "The Application of Recent Advances in Neurophysiology to Miss M. Rood's Concept of Neuromuscular Facilitation," *Physiotherapy*, 58:409-415, December, 1972.

The principles of Miss Rood's treatment concept are summarized. Recent advances in neurophysiology and their application to Miss Rood's treatment concept are then discussed. Also considered are assessment, planning for treatment, the three main groups of motor disability as classified by Miss Rood, and the selection of treatment techniques for each group. Limitations of the concept are listed.

136. Gold, E.R., and Butler, N.R.: *ABO Haemolytic Disease of the Newborn.* Baltimore: Williams & Wilkins, 1972. 212 pp.

Among the topics examined in the five chapters of this monograph are hyperbilirubinemia and jaundice, the serology of ABO hemolytic disease of the newborn, the clinical manifestations, the hematological and biochemical aspects of the disease, histopathological aspects, prevention, treatment, and "Interactions between Mother and Foetus and ABO Incompatibility." The three appendices are concerned with "Diagnostic Techniques," "Historical and General Aspects of HDN," and "HDN in Animals." These are followed by a lengthy bibliography.

137. Gold, Edwin M., ed.: *Proceedings of the National Conference for the Prevention of Mental Retardation Through Improved Maternity Care.* New York Medical College Department of Obstetrics and Gynecology and U.S. Department of Health, Education and Welfare; Children's Bureau, 1968. 243 pp.

Presented are the Proceedings for the six sessions of this Conference held in Washington, D.C. on March 27-29, 1968. The format of each session consisted of the presentation of a paper, followed by responses from several conference participants on the subject of the paper, followed by general discussion. The topics of the various papers presented and their authors are as follows: "Epidemiology of Prematurity" by Milton Terris, M.D.; "Prevention of Obstetric Accidents" by Charles E. Flowers, Jr., M.D.; "Prevention of Premature Labor" by Edward H. Bishop, M.D.; "The Low Birth Weight Infant" by Sydney Gellis, M.D.; a panel discussion on the subject of "Specific Needs to Improve Maternity Care"; and a "Review of Resources" by Charles P. Gershenson, Ph.D. and Gerald D. LaVeck, M.D. Reference lists are frequent throughout.

138. Goldenberg, David M.; Tchilinguirian, Nubar G.O.; Hansen, Hans J.; and Vandevoorde, Jacques P.: "Carcinoembryonic Antigen Present in Meconium: The Basis of a Possible New Diagnostic Test of Fetal Distress," *American Journal of Obstetrics and Gynecology*, 113:66-69, May 1, 1972.

Described experiments were conducted to detect carcinoembryonic antigen (CEA) in the meconium of normal neonates. "Insofar as the quantity of meconium in amniotic fluid reflects hypoxia of the fetus, it is proposed that the content of CEA in amniotic fluid might in turn function as a reliable and sensitive index of fetal well-being during various stages of gestation."

139. "Gonococcal Infection Can Blight Newborn," *Medical World News*, 13:8:19, February 25, 1972.

The results of a study at the University of Washington of 14 babies with gonococcal amniotic infection syndrome are briefly reviewed. This syndrome was seen to have probable adverse effects upon both the pregnancy and the infant. Prematurity, prolonged rupture of the membranes, and suspected infant sepsis were among the symptoms which occurred much more frequently in the 14 study infants than is normal.

140. Goodlin, Robert C., and Schmidt, William: "Human Fetal Arousal Levels as Indicated by Heart Rate Recordings," *American Journal of Obstetrics and Gynecology*, 114:613-621, November 1, 1972.

Instantaneous fetal heart rate recordings were made as described and were classified into patterns "according to their highest level of activity." Fetal arousal levels were then defined from these patterns. Five of these levels are described. They are "the hyperreactive, moderate reactive, reactive, nonreactive, and responsive nonreactive" levels. "These arousal levels of the fetus appear to be dependent upon maternal medications, the maternal emotional state, perhaps the fetus' own intrinsic pattern of arousal, and the general health of the fetus." Repeated stimuli were found to usually arouse a fetus from an unresponsive level to a level that was more responsive. Among the findings reported was that "with the exception of 5 difficult deliveries, all 411 term fetuses that were classified reactive (I, II or III) from their heart rate recordings during the second stage of labor left the delivery in good condition." "By contrast, while we classified only 6 of more than 1,700 recordings as responding nonreactive (V), all the fetuses were premortum or subsequently had neonatal seizures." The authors feel that while these findings and others indicate possible clinical applications of human fetal arousal levels, the applications "must still be considered tentative." Reasons are explained.

141. Gordon, Neil: "Parent Counselling," *Developmental Medicine and Child Neurology*, 14:657-659, October, 1972.

This subject is briefly discussed with emphasis placed on "the practical difficulties involved." Among these are the choosing of the professional best suited for counselling in a specific case, the need for repeated counselling, the need for the sharing of experiences and views among parents, the great importance of and need for parental guidance when making a diagnosis, the need for more research into the opinions of parents on "the advice and services offered to them," and the important part that counselling plays in helping the family of the handicapped child to function more adequately.

142. Graef, John W.; Kopito, Louis; and Shwachman, Harry: "Lead Intoxication in Children," *Postgraduate Medicine*, 50:133-138, December, 1971.

Discussed are the symptoms of lead intoxication, the diagnosis, and the treatment. Two case reports are presented.

143. Grantham, Elizabeth: "Handicapped Children in Preschool Playgroups," *British Medical Journal*, 4:346-347, November 6, 1971.

Described are the playgroups of the Preschool Playgroup Association. This national organization believes that the admission of both handicapped and normal children to the playgroups provides benefits to both the children and the mothers. These benefits as well as the composition of the groups are described. A possible procedure for the placing of handicapped children in the playgroups is outlined.

144. Griffiths, Anthony D., and Bryant, Gillian M.: "Assessment of Effects of Neonatal Hypoglycaemia; A Study of 41 Cases With Matched Controls," *Archives of Disease in Childhood*, 46:819-827, December, 1971.

Forty-one children who had had neonatal hypoglycemia were thoroughly examined as described at a mean age of 51 months. Results were compared to those from matched controls. The hypoglycemic group contained both children who had had asymptomatic hypoglycemia and children who had had symptomatic hypoglycemia. Much resultant data are presented with regard to the history of convulsive disorders, vision, evidence of cerebral damage, intelligence, locomotor development, behavior, and deafness. "Evidence of cerebral damage was found in six of the children who had been hypoglycaemic (14.6%) and in five of the controls (12.2%). This difference is not significant. The mean IQ and locomotor scores of the two groups were identical, and there was no difference in the incidence of behaviour disorders or convulsions." Implications of these results are discussed.

145. Gritzka, Thomas L.; Staheli, Lynn T.; and Duncan, William R.: "Posterior Tibial Tendon Transfer Through the Interosseous Membrane to Correct Equinovarus Deformity in Cerebral Palsy," *Clinical Orthopaedics and Related Research*, 89:201-206, November-December, 1972.

In this article is summarized the experience with 19 posterior tibial tendon transfer operations performed at the Children's Orthopedic Hospital and Medical Center in Seattle, Washington on 17 cerebral palsied children, ages three to 13 years. Methods are presented, and results were assessed in 15 of the 19 operations. Results were evaluated by means of clinical examination, electromyography, and stroboscopic gait analysis. "Posterior tibial tendon transfer affords the cerebral palsy patient a good chance of being rid of equinovarus gait and the need for a brace. We believe that the transfer works primarily by checkrein effect supplemented by spastic muscular contraction, holding the foot at neutral against the pull of the spastic calf muscles during swing phase. With careful attention to technic, the operation can be relied upon to correct equinovarus deformity in cerebral palsy."

146. Gutai, James; George, Rachel; Koeff, Steve; and Bacon, George E. with the technical assistance of Constance Johnson: "Adrenal Response to Physical Stress and the Effect of Adrenocorticotropic Hormone in Newborn Infants," *Journal of Pediatrics*, 81:719-725, October, 1972.

Studied with regard to serial plasma cortisol concentrations during the first three days of life were a group of 57 neonates, some of whom were considered to be normal as described and some of whom had experienced "physical stress in the prenatal or postnatal period" as described. No significant differences in plasma cortisol levels were found between the normal and the stressed newborns. Then in order to investigate "the possibility that the adrenal gland of stressed neonates may be relatively insensitive to ACTH," ACTH was administered as described to an additional eight neonates considered to be normal and to seven neonates who were considered to be stressed. Plasma cortisol levels were then determined as described and were found to rise substantially with the levels of the normal newborns rising "from 7.0 to 13.2 µg. per 100 ml. two hours following injection of ACTH" and the levels of the stressed infants rising "from 9.2 to 24.1 µg. per 100 ml." two hours after ACTH administration. "These results should be interpreted as indicating only that the adrenal gland of stressed newborn infants will respond to ACTH stimulation." Other implications are considered.

147. Hagberg, Bengt; Sanner, Gunnar; and Steen, Monica: "The Dysequilibrium Syndrome in Cerebral Palsy; Clinical Aspects and Treatment," *Acta Paediatrica Scandinavica*, Supplement 226, 1972. 63 pp.

Following an introduction, the definition of terms, and a review of the literature, the findings of the authors "from 13 cases of non-progressive motor disturbances dominated by a defective sense of equilibrium and body position, studied during various developmental stages at the Cerebral Palsy Clinic in Uppsala during the years 1956-1968 and again at a planned follow-up investigation in 1969" are presented. The children, the methods of the follow-up examination, the findings with respect to etiological factors, the clinical characteristics of the children, and observations made on these children concerning therapeutic aspects are described in Chapters IV through VII. A chapter of "general discussion," a summary, and a bibliography complete this Supplement.

148. Haider, S.A.: "Serum IgM in Diagnosis of Infection in the Newborn," *Archives of Disease in Childhood*, 47:382-393, June, 1972.

In order to study the value of serum IgM determinations in the diagnosis of neonatal infection, serum IgM values were determined as described during the neonatal period in a total of 340 newborns. Results presented in this article concern the 36 infants who had established infection, the 100 normal infants of low birthweight, and the 100 normal infants of normal birthweight. Much relevant clinical data on the neonates with infection are included. Three groups of infants were able to be differentiated with regard to type of infection and IgM levels and are described. "The behaviour of serum IgM in the infants with systemic infection and also in those suffering from superficial infection with systemic symptoms was significantly different from the normal. Serum IgM rose within two days of appearance of symptoms and the rise persisted as long as the infection was 'active.' With the eradication of infection the IgM level tended to fall. This characteristic dynamic pattern of serum IgM may be of considerable help in the diagnosis of neonatal infection, especially the clinically inapparent and atypical varieties that may have serious sequelae later in life."

149. Haire, Doris: "Childbirth in the Netherlands: A Contrast in Care," *ICEA News*, November-December, 1970.

Thirteen differences between hospital maternity care in the Netherlands and in the United States are listed to demonstrate how some of the obstetrical practices in the United States have contributed to our relatively poor infant mortality rate "by thwarting the normal physiological process of childbirth and lactation."

150. Halpin, Thomas F.; Jones, Albert R.; Bishop, H. Lee; and Lerner, Saul: "Prophylaxis of Neonatal Hyperbilirubinemia With Phenobarbital," *Obstetrics and Gynecology*, 40:85-90, July, 1972.

Previous research in this area is reviewed. Beginning with week 32 of pregnancy, 96 women were given daily doses of phenobarbital as described. Infant serum bilirubin levels were determined after birth and compared to those of 114 control infants. "Treatment lowered the mean neonatal bilirubin at 72 hours after birth from 8.5 to 6.4 mg.%. While 24.6% of control infants had serum bilirubin levels greater than 10 mg.% at 96 hours, only 7.3% of the treated infants had levels greater than 10 mg.% at this time." On the basis of these and other results it is concluded "that treating mothers with phenobarbital is an effective adjunct in lowering the incidence of neonatal jaundice."

151. Hamilton, Eugene G.: "Ten-Year Experience With High Titer Anti-D Plasma for the Prevention of Rh Isoimmunization," *Obstetrics and Gynecology*, 40:692-696, November, 1972.

The methods and results of such a ten-year experience with the administration of high titer anti-D plasma to over 1,400 Rh negative women after the delivery of an Rh positive infant are presented. "Of these 1400 women, 240 returned with 1 to 5 subsequent Rh positive pregnancies, for a total of 336. Three sensitizations occurred. Two of the babies did not require treatment but the third died resulting in a perinatal mortality rate of about 3 per 1000 babies at risk." The risks involved are discussed, and other studies are mentioned. It is concluded that "this form of prophylaxis is safe, effective and economic."

152. Hamilton, Lewis A., Jr., and Behrman, Richard E.: "Intra-Amniotic Infusion of Bicarbonate in the Treatment of Human Fetal Acidosis," *American Journal of Obstetrics and Gynecology*, 112:834-847, March 15, 1972.

In order to study the effects of intra-amniotic infusion of bicarbonate on asphyxia in utero, 11 pregnant women who were scheduled for cesarean section delivery and the majority of whom had complications were treated at the time of delivery with 40 to 100 mEq. of sodium bicarbonate infused into the amniotic cavities. Eleven other similar pregnant women also scheduled for cesarean section served as controls. All of the patients received spinal anesthesia. Methods are described, and results concerning the acid-base status and clinical data are presented. Five patients in the treated group and five patients in the control group developed post-spinal-block hypotension. "Mean umbilical arterial base excess of the treated group was significantly greater than that of the untreated group (-7.0 vs. -10.9 mEq. per liter, $p < 0.05$), suggesting that a significant bulk transfer of bicarbonate occurred from the amniotic fluid to the fetus. The probable effect was a partial correction of the metabolic component of the fetal acidosis. pH and base excess concentration gradients between amniotic fluid, gastric aspirate, and fetal blood suggest a route of transfer across the gastric mucosa in treated infants. The bicarbonate-treated group had significantly higher mean 1 and 5 minute Apgar scores than did the untreated group." A discussion of these results and their implications are discussed by other doctors following the text of this article.

153. Harris, Paul, and Holley, Marshall R.: "Lead Levels in Cord Blood," *Pediatrics*, 49:606-608, April, 1972.

Lead levels were measured from the "venous maternal blood during labor" and from the "fetal cord blood at the time of delivery" of 24 mothers and their neonates in order to obtain information on such levels in neonates who have not been exposed to "environmental lead." Levels in mothers and infants were found to be "lower than 'normal' blood lead standards usually accepted in the diagnosis and treatment of childhood lead poisoning." It is believed that normal lead levels are lower than is commonly now accepted. Follow-up on these children is anticipated to determine any change in lead levels.

154. Harrison, R.F.: "Amniotic Fluid Uric Acid Levels in the Maturing Fetus," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:708-709, August, 1972.

Amniotic fluid uric acid levels were determined as described in a series of 100 women in order to investigate the use of such levels as indicators of fetal maturity. It was found that the levels increased as pregnancy advanced. "At a maturity of 38 weeks or over, 79 per cent of cases had a uric acid level over 8.5 mg. per 100 ml. and before 38 weeks no cases showed this level." No relationship was found between maternal condition and amniotic fluid uric acid level. Also no relationship was found between maternal plasma uric acid levels and amniotic fluid uric acid levels. Further study of this method of assessing fetal maturity using a larger series is needed.

155. Haworth, J.C., and Ford, J.D.: "Comparison of the Effects of Maternal Undernutrition and Exposure to Cigarette Smoke on the Cellular Growth of the Rat Fetus," *American Journal of Obstetrics and Gynecology*, 112:653-656, March 1, 1972.

To study the effects of cigarette smoke and restricted food intake on fetal growth in rats, a series of pregnant rats were randomly assigned to one of three groups. The control group (1) was fed ad libitum. The "food-restricted group" (2) was pair-fed on a restricted diet with the "tabacco-smoked group" (3), which was exposed to cigarette tabacco smoke as described. Results are reported concerning fetal body and organ weights, with particular emphasis on cellular growth in the brain, and mean total DNA and protein contents in the bodies and brains. "This study shows that exposure to cigarette smoking during pregnancy in the rat results in retardation of cellular growth on the offspring and that this is not due solely to reduced food intake of the mother."

156. Heidger, P.M., Jr., and Hegab, Eli-Sayed H.H.: "The Effect of Asphyxia Upon the Activity of the Succinic Dehydrogenase Complex in the Heart and Brain of the Newborn Guinea Pig," *Biology of the Neonate*, 19:36-41, 1971.

"The effect of asphyxia upon the activity of the succinic dehydrogenase complex (SDC) in the myocardium and medulla oblongata of the newborn guinea pig" was investigated by using a spectrophotometric technique. The experimental animals were asphyxiated and then either sacrificed or resuscitated immediately after the time of last gasp (TLG). All methods are described. It was found that "the SDC activity of the normal ventricular myocardium exceeded that of the normal medulla oblongata approximately 5-fold." "Following asphyxiation to TLG a significant change in activity was detected only in the myocardium, when activity had decreased nearly 30% from control values. No significant change in activity was found in the medulla oblongata. Twenty-four hours following asphyxiation to TLG and resuscitation, no evidence of decreased SDC activity in the heart was found. The SDC activity in the medulla oblongata at this time did not differ significantly from that of controls." Results are interpreted.

157. Heisler, Verda: *A Handicapped Child in the Family; A Guide for Parents*. New York: Grune & Stratton, 1972. 160 pp.

Written for parents, this book is the result of a therapy group of parents of cerebral palsied children conducted by the author, a psychotherapist. This group of parents is used in the book in an instructive manner to illustrate the problems faced by parents in their adjustment to their child's handicap and the influence that this adjustment has on the life of the child. "A basic premise of this book [is] that the ways in which the parents react to and cope with their child's handicap will be determined by their own psychological dynamics, life orientation, and level of actualization as individuals." In an appendix are listed the "national organizations that have local affiliates serving handicapped children and their families."

158. Held, Berel; Caraway, A.F.; and Prystowsky, Harry: "Research in the Delivery of Health Care: Evaluation of a Maternity and Infant Care Project," *American Journal of Obstetrics and Gynecology*, 112:527-533, February 15, 1972.

The North Central Florida Maternity and Infant Care Project No. 546, begun in November 1966, is described. "The ultimate purpose of the program was to reduce maternal and perinatal mortality as well as infant mortality and morbidity through the provision of comprehensive health services to mothers and infants." The five objectives of the Project are listed, changes that have been made in the Project and the reasons for such changes are described, and the Project is critically evaluated. A discussion follows the text of the article.

159. Hellmuth, Jerome, ed.: *Exceptional Infant, Volume 2; Studies in Abnormalities*. New York: Brunner/Mazel, 1971. 529 pp. (Series: I cited in previous volume.)

Emphasized by the contributors to this volume are the "deviations from normal development" of the human infant. Part I contains seven articles on "Examination and Observation" of the infant and young child. Part II consists of six papers on "Learning and Language" in the infant and young child. In Part III "Behavior Disorders and Psychopathology" in infants and young children are discussed in eight papers. Lengthy bibliographies follow each contribution. Papers of particular pertinence to this bibliography are annotated within.

160. Hertzig, Margaret E.; Birch, Herbert G.; Richardson, Stephen A.; and Tizard, Jack: "Intellectual Levels of School Children Severely Malnourished During the First Two Years of Life," *Pediatrics*, 49:814-824, June, 1972.

Research and research methods in the area of malnutrition and its effects are reviewed. A study is then described in which 74 Jamaican boys who had been hospitalized for severe malnutrition during the first two years of their lives were compared as to intellectual functioning on the WISC at school age with 1) "male siblings closest in age," and 2) "unrelated classmates or neighbors matched for sex and age." The malnourished children were found to have the lowest mean test scores, the sib group scores were in an intermediate position, and the classmates and neighbors group had the highest scores. "No association was found between the intellectual level of index cases and the ages at which they had been hospitalized for the treatment of severe malnutrition during the first 2 years of life." Details of the methods used and results obtained and the limitations of the test for this test population are presented. Findings are discussed.

161. Hill, D.E.; Myers, R.E.; Holt, A.B.; Scott, Rachel E.; and Cheek, D.B.: "Fetal Growth Retardation Produced by Experimental Placental Insufficiency in the Rhesus Monkey. II. Chemical Composition of the Brain, Liver, Muscle and Carcass," *Biology of the Neonate*, 19:68-82, 1971. (Series: For I see #253.)

Studied by explained methods were the changes in the chemical composition of the brain, liver, muscle, and carcass of the same experimental animals as were described in the first article in this series. There were 13 rhesus monkeys in the total experimental group with seven of these defined as being intrauterine growth retarded (IUGR). Eight monkeys served as controls. "Total DNA in the cerebellum of the IUGR group was low, while the cerebral DNA was normal. Total amounts of RNA, protein and water were low while the concentrations were unchanged in both the cerebrum and cerebellum. The protein-DNA ratio was normal. In the liver, total DNA, RNA, protein and glycogen were low in the IUGR group but the concentrations were normal. The protein-DNA ratio was normal in the IUGR group. The findings in muscle were similar except that the protein-DNA ratio was also low. The carcass had low values for total amount of fat, protein, water, and collagen and a low percentage fat in the IUGR group."

162. Hofmeister, F.J.; Schwartz, W.R.; O'Leary, W.J.; Stanhope, C. Robert; and Inman, J.E.: "Decreasing the Risk of Fetomaternal Transfusion at the Time of Delivery," *American Journal of Obstetrics and Gynecology*, 112:594-600, March 1, 1972.

Research concerning the passage of fetal cells into the maternal circulation and the problem of Rh sensitization is reviewed. In a study involving 531 pregnant patients at the Lutheran Hospital of Milwaukee, various methods of managing the third stage of labor were compared with regard to the degree of fetomaternal transfusion that occurred. "Despite reports that manipulation of the placenta causes increased fetal cell transfer, we conclude that the manually removed placenta with the cord drained prior to removal presents no significant added risk of fetomaternal transfusion. Induction of labor with intravenous Pitocin did not increase the risk in our series. Cesarean section produced an increased incidence of fetomaternal transfusion. It is recommended that all obstetricians consider draining the cord prior to delivery of the placenta whether delivery of the placenta is by manual removal or spontaneous expulsion." A brief discussion follows the text.

163. Holdaway, David: "Educating the Handicapped Child and His Parents," *Clinical Pediatrics*, 11:63-64, February, 1972.

The child and his parents are discussed individually as being the "two entities 'at risk'" in a family containing a handicapped child. The responsibility of the doctor in such a situation is noted. Also mentioned is the importance of preschool education for the handicapped child.

164. Holden, Kenton R.; Young, Reuben B.; Piland, Jethro H.; and Hurt, W. Glenn: "Plasma Pressors in the Normal and Stressed Newborn Infant," *Pediatrics*, 49:495-503, April, 1972.

Plasma pressor activity (PPA) was determined in umbilical plasma by means of "a modified in vitro bioassay which reflects primarily plasma levels of epinephrine and norepinephrine" in 33 newborns who were evaluated in four groups. Group 1 contained 14 normal full-term newborns; Group 2 included seven full-term neonates with asphyxia neonatorum; Group 3 was comprised of eight full-term neonates who had mildly preeclamptic mothers; and Group 4 contained two sets of prematurely born twins. The infants in Group 2 were found to have "significant hypercapnia, acidemia, lower Apgar scores, and elevated PPA as compared to normal" with "similar trends" evident in the Group 3 infants and in the second born of the twins. "Pooled data on all newborn infants revealed a highly significant correlation between umbilical artery PPA and $PaCO_2$, pH_a, as well as Apgar scores at 1 and 5 minutes."

165. Holden, Raymond H.: "Prediction of Mental Retardation in Infancy," *Mental Retardation*, 10:28-30, February, 1972.

Previous work in this area is briefly reviewed and the methods and results of a study involving a portion of the infant population from the Child Development Study at Brown University are presented. Two groups of children who had tested "1 month or more below average on the Bayley Scales of Mental or Motor Development at age 8 months" were followed to age four and to age seven years respectively. A control group contained children who had received normal results from the examinations at eight months, four years, and seven years of age. Mean intelligence scores were found to be significantly lower in both experimental groups than in the control group. Implications of these results are discussed in relation to the prediction of mental deficiency in infancy.

166. Holser-Buehler, Patricia: "Wheelchair Utility Tray," *American Journal of Occupational Therapy*, 24:49-50, January-February, 1970.

Such a tray is described in detail and pictured. It was designed to be used with cerebral palsy patients. "The cerebral palsy treatment concept of patients who have poor sitting balance taking weight on their arms to support a more erect sitting posture, gave impetus to its development."

167. Hom, Christina; Whistler, Barbara; and Heisler, Kosmos: "Adjustable Prone Standing Table," *Physical Therapy*, 52:1058-1059, October, 1972.

Such a table is pictured and described, and materials needed to construct the table are listed. Its adjustable features can be utilized for those "children who can benefit from being in the prone position." Numerous uses are suggested.

168. Hook, Ernest B.; Janerich, Dwight T.; and Portor, Ian H., eds.: *Monitoring, Birth Defects and Environment; The Problem of Surveillance*. New York: Academic Press, 1971. 308 pp.

This volume contains the proceedings of a Symposium on Monitoring, Birth Defects, and Environment which was sponsored by the Birth Defects Institute of the New York State Department of Health and held in Albany, New York in October, 1970. Part I of the book is an "Introduction." Part II through V contain contributions by participants in the areas of "Prenatal Monitoring," "Monitoring Major Malformations," "Monitoring Minor Malformations," and "Monitoring Mutations." The "Conclusion" is contained in Part VI. References are listed after most contributions.

169. Horger, Edgar O., III: "Amniotic Fluid Maturity Index," *Southern Medical Journal*, 65:299-301, March, 1972.

The various tests of amniotic fluid used to assess fetal maturity are reviewed. Then described is a study of 37 pregnant women from whom a total of 52 amniotic fluid samples were obtained. These samples were analyzed according to a maturity index which incorporated four parameters of amniotic fluid ("creatinine concentration, ΔOD_{450}, osmolality, and percentage of fat cells)." This index was found to be reliable in evaluating gestational age. It also "avoids the lack of precision of a single test."

170. Hurry, D.J.; Tovey, J.E.; Robinson, D.A.; and Beynon, C.L.: "Cystine Aminopeptidase in Normal and Complicated Pregnancies," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:788-793, September, 1972.

The enzyme, cystine aminopeptidase (CAP), is described. Blood was obtained and CAP was estimated in 48 normal pregnant patients (controls) and in 104 patients having described abnormal pregnancies for the purpose of defining "CAP values in normal and abnormal pregnancies," The method by which serum CAP activity was measured is described. Results are presented for the normal patients with regard to CAP values during pregnancy, during labor, and in the puerperium. Results in the complicated pregnancies are presented concerning CAP values in the 13 cases of perinatal death, in the small-for-dates pregnancies, in the cases of hypertension, pre-eclampsia, and diabetes, and in the five patients with twins. CAP values were found to steadily rise during normal pregnancy. Also in normal pregnancy a significant correlation was found between CAP value at term and birth weight. "Falling CAP values suggest placental failure with an increased risk to the fetus."

171. James, L.S.; Morishima, H.O.; Daniel, S.S.; Bowe, E.T.; Cohen, H.; and Niemann, W.H.: "Mechanism of Late Deceleration of the Fetal Heart Rate," *American Journal of Obstetrics and Gynecology*, 113:578-582, July 1, 1972.

The term, "late deceleration," is defined. "The fetus who exhibits this pattern of bradycardia during labor is usually severely asphyxiated and depressed at birth." In order to determine the relationship between this late deceleration of the fetal heart rate, the acid-base status of the fetus, and the level of oxygenation, experiments were performed as described on primates who were directly monitored during labor. "In those fetuses which became acidotic, hypoxic, and hypotensive as labor advanced, there was an increase in base-line heart rate and late deceleration of the fetal heart rate following each uterine contraction. The late deceleration appeared as a marked transient bradycardia and was accompanied by a further decrease in fetal oxygen levels." "Late deceleration was abolished or suppressed when the level of fetal oxygenation was increased by administering a high concentration of oxygen to the mother. Since the fetal acidosis and hypotension remained, it is concluded that fetal hypoxia is the essential component producing late deceleration of the heart rate."

172. Johnell, H.E.; Nilsson, B.A.; and Tammivaårá-Hilty, Ritva: "Oxygen Tension, Carbon Dioxide Tension and pH in Amniotic Fluid and Maternal Arterial Blood During Induced Maternal Hyperoxia and Hypoxia," *Acta Obstetricia et Gynecologica Scandinavica*, 50:209-214, 1971.

Studied in eight women between the fifteenth and twentieth weeks of gestation were the effects of induced maternal hyperoxia and hypoxia on Po_2, Pco_2 and pH in the maternal arterial blood and in the amniotic fluid. Procedures and methods of analysis as well as results are presented. "Hyperoxia with about 100% O_2 gave an increase in maternal Pa_{O_2} to about 500-600 mm Hg followed by a significant increase in amniotic fluid Po_2. Pronounced hypoxia (10% O_2) reduced maternal Pa_{O_2} to about 40 mm Hg and caused a significant decrease in amniotic fluid Po_2. Minor changes in Pco_2 and pH of maternal arterial blood and amniotic fluid were seen during hyperoxia and hypoxia." Implications are considered.

173. Johnson, Richard T.: "Effects of Viral Infection on the Developing Nervous System," *New England Journal of Medicine*, 287:599-604, September 21, 1972.

Examined are the effects of viral infections "on organogenesis," "on immature cell populations," and "on differentiated cells causing defects resembling agenesis." Many studies are mentioned. A short discussion of the paper follows the text.

174. Jorgensen, Valerie: "Clinical Report on Pennsylvania Hospital's Adolescent Obstretric Clinic," *American Journal of Obstetrics and Gynecology*, 112:816-818, March 15, 1972.

Reviewed are the results over an 18-month period of a comprehensive adolescent obstetrical care program at the Pennsylvania Hospital. Compared were the adolescent statistics since the program started with statistics for the two years prior to the initiation of the program. The cesarean section rate, prematurity, anemia, antenatal admissions, pre-eclampsia, and eclampsia were all substantially reduced during the period of the adolescent program. These statistics document the value of a good preventive care program for lowering the high-risk and management factors in the adolescent obstetric patient.

175. Kammholz, Larry P.; Thatcher, L. Gilbert; Blodgett, Frederic M.; and Good, Thomas A.: "Rapid Protoporphyrin Quantitation for Detection of Lead Poisoning," *Pediatrics*, 50:625-631, October, 1972.

Described in this article is "a rapid fluorescent method for estimation of free erythrocyte protoporphyrin (FEP)" for the detection of lead poisoning. Results of employing the method on 56 children are presented. The method was found to "quickly select patients that may have markedly increased lead absorption and need prompt therapy or select those that at least require further studies for possible lead exposure or the presence of anemia."

176. Karlsson, Börge W.; Bergstrand, C.G.; Ekelund, Hans; and Lingberg, Tor: "Postnatal Changes of Alpha-Foetoprotein, Albumin, and Total Protein in Human Serum," *Acta Paediatrica Scandinavica*, 61:133-139, March, 1972.

a-Fetoprotein, albumin, and total protein levels were studied in serum in a group totaling 330 neonates during the first months of life in order to assess the postnatal changes in a-fetoprotein level. The infants and the analytical and statistical methods used are described. The a-fetoprotein level was found to decrease within 4-6 hours following birth as did the albumin and total protein levels 10-20 hours following birth. "During the following 2-4 days after birth the levels of albumin and total protein continued to decrease whereas the a-foetoprotein level was rather constant. These results were tentatively interpreted as a continued, though low, synthesis of a-foetoprotein after birth." Results also implied "that the a-foetoprotein level may be a better indicator of gestational age than birth weight" and if an a-fetoprotein level is found to be "high for a given gestational age this does not mean that the birth weight is necessarily high."

177. Karlsson, Kirsten, and Kjellmer, Ingemar: "The Outcome of Diabetic Pregnancies in Relation to the Mother's Blood Sugar Level," *American Journal of Obstetrics and Gynecology*, 112:213-220, January 15, 1972.

Reported is a study in which 179 diabetic pregnancies were analyzed. Eighty-four of these patients were from 1961 to 1965 (Group 1) and 95 were from 1966 to 1970 (Group 2). The principles of treatment of these two groups are described with it being evident that care was intensified for both mother and newborn in Group 2. Mean blood sugar levels were obtained in 167 of these women during their last weeks of pregnancy. Detailed results of many comparisons with regard to mortality and morbidity are presented. Whereas the perinatal mortality rate was 23.6 percent in the infants of mothers having "a mean blood sugar level about 150 mg. per 100 ml.," it was reduced "to 3.8 percent in the group with mean blood sugar levels below 100 mg. per 100 ml." Morbidity was also siginficantly reduced in the infants of mothers whose mean blood sugar values were below 100 mg. per 100 ml. "Two circumstances are stressed: the active management of the pregnant diabetic subject with the goal to reduce the mean blood sugar value below 100 mg. per 100 ml., and the active management of the newborn infant with the early supply of fluid and calories."

178. Kaye, Jeremy J., and Freiberger, Robert H.: "Fragmentation of the Lower Pole of the Patella in Spastic Lower Extremities," *Radiology*, 101:97-100, October, 1971.

Reviewed in order to determine the frequency of fragmentation of the lower pole of the patella were the roentgenograms of 290 cerebral palsied children under 15 years of age. These records were compared to "the records of 5 patients previously diagnosed roentgenographically as having Sinding-Larsen Johansson's disease." "This patellar abnormality was found in 7 of 25 cerebral spastic patients with ossified patellae who had undergone radiography of the knee." These results are discussed. "It is suggested that the cause of patellar fragmentation is essentially traumatic, the flexion contractures and spasticity causing abnormal stresses at the knee joint and resulting in repeated minor trauma."

179. Keats, Sidney: "Early Preventive Surgery in the Modern Management of the Pre-School Child," *International Surgery*, 57:398-405, May, 1972.

The purpose, indications, and specific objectives of surgery in cerebral palsy, its place in the treatment program, and the need for repeated assessment of the total cerebral palsy patient are among the factors discussed by Dr. Keats. Specific motion limitations seen in cerebral palsy patients, their evaluation, and their surgical procedures are explained. Clearly emphasized are the benefits of early diagnosis, early evaluation, and early surgery with the importance of post-operative evaluation and the necessity of post-operative physical therapy also stressed. Many views of W.J.W. Sharrard are presented, and a case illustration is included. "With preventive early surgery, where indicated, followed by intensive physical training, the majority of our preschool children became ambulatory without braces and crutches and were able to attend regular public school classes with their peer age groups." "Now we can say that a brain-injured child need no longer be a crippled child."

180. Keenan, William J.; Perlstein, Paul H.; Light, Irwin J.; and Sutherland, James M.: "Kernicterus in Small Sick Premature Infants Receiving Phototherapy," *Pediatrics*, 49:652-655, May, 1972.

Case histories are presented and discussed for four immature infants who developed kernicterus. Although all four received phototherapy treatment and in all four the serum bilirubin levels fell after the initiation of such treatment, the phototherapy still failed to prevent the kernicterus from developing.

181. Kim, Young Jin, and Felig, Philip: "Maternal and Amniotic Fluid Substrate Levels During Caloric Deprivation in Human Pregnancy," *Metabolism*, 21:507-512, June, 1972.

Compared with regard to the concentrations of glucose β-hydroxybutyrate, acetoacetate, free fatty acids, and glycerol in maternal blood and in amniotic fluid were 11 women fed normally as described and 18 women who had fasted as described for from 85 to 90 hours. Both groups were studied during weeks 16 to 22 of gestation, and all were to have "therapeutic abortion for psychiatric reasons." In the fasted women there was significant hypoglycemia, hyperketonemia, and an increase in free fatty acid and glycerol concentrations. Also the amniotic fluid glucose levels fell to 40 percent below those of the group fed normally. Other data are presented. "The data indicate that the starvation in human pregnancy results in decreased availability of glucose and increased availability of ketones and glycerol in amniotic fluid, as well as maternal blood."

182. Klebe, J.G.; Ingomar, C. Joh.; and Nørgaard-Pedersen, B.: "Blood Volumes in Premature Infants of Diabetic and Non-Diabetic Mothers, Correlated With the Time of Clamping of the Umbilical Cord," *Acta Paediatrica Scandinavica*, 61:549-554, September, 1972.

Blood volumes were determined as described in 33 premature neonates of diabetic mothers and in 21 premature neonates of non-diabetic mothers. Umbilical cords were randomly clamped either early or late, as defined. Among the findings was that plasma volume was significantly lower in infants of diabetic mothers than in infants of non-diabetic mothers regardless of the time of clamping. This and other findings led to the hypothesis "that infants of diabetic mothers immediately upon birth adapt themselves to a volume of plasma smaller than that seen in normal infants owing to the fact that the former have a smaller vascular capacity as related to their weight." "This in turn may depend upon their extra amount of relatively non-vascular adipose tissue which adds to their weight at birth."

183. Klingberg, Marcus A.; Abramovici, Armand; and Chemke, Juan, eds.: *Drugs and Fetal Development*. New York: Plenum Press, 1972. 559 pp.

This volume contains the Proceedings of an International Symposium on the Effect of Prolonged Drug Usage on Fetal Development which was held at Kfar Saba, Israel in September, 1971. A total of 44 papers on many aspects of the subject are included.

184. Koivisto, Maila; Blanco-Sequeiros, Marjatta; and Krause, Ulf: "Neonatal Symptomatic and Asymptomatic Hypoglycaemia: A Follow-Up Study of 151 Children," *Developmental Medicine and Child Neurology*, 14:603-614, October, 1972.

One hundred fifty-one infants with "exclusive neonatal hypoglycaemia" were followed for from one to four years following birth to study the relationship between neonatal hypoglycemia and subsequent abnormalities. Of these infants 85 were symptomatic and 66 were asymptomatic. A control group of 56 normal infants was also followed. The infants, their treatment at birth and follow-up examination methods are described. On the basis of findings at follow-up the children were classed as being normal, pathological, or doubtful, as defined. Results are presented for the group of children who had been symptomatic and who had experienced convulsions, for those who had been symptomatic without convulsions, for the asymptomatic group, and for the controls. "The findings suggest that time is the most important factor affecting the onset of symptoms in the newborn period, and that symptomatic hypoglycaemia with convulsions has a poor prognosis for permanent CNS damage, while asymptomatic hypoglycaemia without convulsions appears to have no influence in this respect." Other ramifications of the findings are discussed.

185. Kolderie, Mary L.: "Behavior Modification in the Treatment of Children With Cerebral Palsy," *Physical Therapy*, 51:1083-1091, October, 1971.

The literature on behavior modification as a method of treatment is briefly reviewed and terms used in the method are defined. The use of behavior modification in physical therapy for the cerebral palsied child is then considered with regard to the development of motor skills and speech. A case history is presented to illustrate.

186. Kopelman, Arthur E.; Brown, Ralph S.; and Odell, Gerald B.: "The 'Bronze' Baby Syndrome: A Complication of Phototherapy," *Journal of Pediatrics*, 81:466-472, September, 1972.

Described and discussed is the case report of a premature infant who developed "an intense grey-brown discoloration of the skin, serum, and urine anemia" when treated with phototherapy for hyperbilirubinemia.

187. Kopp, Claire B., comp. and ed.: *Readings in Early Development for Occupational and Physical Therapy Students*. Springfield, Ill.: C.C. Thomas, 1971. 562 pp.

The 23 papers in this volume deal primarily with the infant and young child and are grouped into eight areas of development: neurophysiological, sensory, motor, perceptual, cognitive, language, body image and laterality, and emotional and social. Short introductions by the editor precede each article, and each article is usually followed by a quite lengthy bibliography.

188. Kotok, David: "Development of Children With Elevated Blood Lead Levels: A Controlled Study," *Journal of Pediatrics*, 80:57-61, January, 1972.

Previous work is reviewed. Twenty-four children, having elevated blood lead levels as described, were evaluated as to developmental status by means of the Denver Developmental Screening Test. Results were compared to those of a control group of children from a similar environment and to another group of predominately middleclass, urban children. "Children in both the lead and control groups demonstrated deficiencies in fine motor-adaptive and language functions; the deficiencies were directly related to inadequacies in the children's environment. There were no significant differences in developmental scores between the lead and control groups, indicating that the developmental deficiencies were not secondary to lead toxicity." Implications are further considered.

189. Kraybill, Ernest N.; Sever, John L.; Avery, Gordon B.; and Movassaghi, Nasser: "Experimental Use of Cytosine Arabinoside in Congenital Cytomegalovirus Infection," *Journal of Pediatrics*, 80:485-487, March, 1972.

The cases of two infants, who had congenital cytomegalovirus infection and who were treated as described with cytosine arabinoside, are described. "The purpose of the experiment was to determine whether the use of this drug could eradicate the virus from the infected infants and thereby halt progression of neurologic damage." This was not accomplished by the treatment given. Toxicities were present and are described. Possible reasons for the eradication failure are discussed.

190. Krech, U.; Jung, M.; and Jung, F.: *Cytomegalovirus Infections of Man*. Basel, New York: S. Karger, 1971. 124 pp.

After an "Historical Review" of research that has been conducted on this subject, the facets of "Virology," "Epidemiology," "Pathogenesis," "Clinical Observations," and "Laboratory Diagnosis" are considered in individual sections. A lengthy reference list follows the text.

191. Kulkarni, B.D.; Bieniarz, Joseph; Burd, Lawrence; and Scommegna, Antonio: "Determination of Lecithin-Sphingomyelin Ratio in Amniotic Fluid," *Obstetrics and Gynecology*, 40:173-179, August, 1972.

Reported is a modification in the method of Gluck for determining the lecithin/sphingomyelin ratio (L/S) used to estimate fetal lung maturity. The modified method and the results of using the method are presented. "In the followup of 41 pregnancies, low lecithin-sphingomyelin ratios, $\angle 1.0$, were confirmed before week 29, correctly predicting the development of respiratory distress syndrome in the premature newborn. In pregnancy of unknown duration or near term, low L/S values oblige one to maintain pregnancy until repeated sampling confirms fetal lung maturity."

192. Kupferberg, Herbert: "Baby Power," *Parade*, April 9, 1972, pp. 28-29.

Presented in pictures and words is the view of a team of Czechoslovakian scientists at the Research Institute for the Care of Mother and Child in Prague that "children should be allowed to climb ladders and perform other physical feats even before they can walk" in order that they may develop to their fullest potential. The team used various experimental motor development equipment with a group of infants, beginning at three months of age. Initial results have indicated that these babies crawled and walked earlier than normal and also advanced quicker in other developmental areas.

193. Kuzemko, J.A., and Hartley, S.: "Treatment of Cerebral Irritation in the Newborn: Double-Blind Trial With Chloral Hydrate and Diazepam," *Developmental Medicine and Child Neurology*, 14:740-746, December, 1972.

The properties of chloral hydrate and of diazepam are reviewed. In order to compare the effectiveness of these two drugs as treatment for newborn cerebral irritation, a double-blind study was conducted on 32 full-term, "excessively hyperactive" neonates. The criteria by which these infants were included in the study are listed. Results were analyzed for 17 babies in the chloral hydrate group and for 11 babies in the diazepam group. "Both drugs were found to be effective in controlling symptoms but more side-effects were observed with chloral hydrate than with diazepam. The most significant finding related to weight gain. Babies treated with diazepam had a mean weight gain of +0.03 kg on the fourth day of life, whereas those treated with chloral hydrate had a mean weight loss of -0.15 kg ($p < 0.02$)." Diazepam is concluded to be "the drug of first choice."

194. Laga, Emil M.; Driscoll, Shirley G.; and Munro, Hamish, N.: "Comparison of Placentas From Two Socioeconomic Groups. I. Morphometry," *Pediatrics*, 50:24-32, July, 1972. (Series: For II see #195.)

The placentas from 18 middle-class urban Boston deliveries and the placentas from 20 low-class urban Guatemalan deliveries were obtained, analyzed, and compared as described by means of morphometric techniques. Much data is presented regarding maternal and fetal findings, macro- and micromorphometry of the placentas studied, mass components of the placentas, and findings concerning the analysis of the villous surface of the placentas. Considerable differences were detected between the two groups in both fetal and placental areas. "In conclusion, low birth weight, when associated with low socioeconomic status and malnutrition, appears to be correlated with low functional placental mass. This reduction in functional tissue is accompanied by diminution in area for exchange, both at the villous surfaces and at the surfaces of the capillaries of peripheral villi. However, without first evaluating the functional capacity of the placentas, no causal relationship between these placental differences and fetal development can be established."

195. Laga, Emil M.; Driscoll, Shirley G.; and Munro, Hamish N.: "Comparison of Placentas From Two Socioeconomic Groups. II. Biochemical Characteristics," *Pediatrics*, 50:33-39, July, 1972. (Series: For I see #194.)

Reported in this article are the results of studying the 18 placentas from the middle-class urban Boston deliveries and the 20 placentas from the low-class urban Guatemalan deliveries with regard to "(a) the placental content of DNA, RNA, total protein, and heat-stable alkaline phosphatase; (b) the capacity for in vitro cell-free protein synthesis of isolated fractions from the placentas of the two population groups; and (c) the correlations of these biochemical data with the metabolically active trophoblastic and fibroblastic cell masses and with the aggregate placental mass." Methods and results are described, and much data are presented. "All biochemical values expressed per whole placenta were lower in those from the Guatemala population than in the Boston group. However, the magnitude of the decrease did not reflect the extensive and very significant differences found by morphometry, [article I of this series] which revealed a 25 percent reduction in total mass of active placental tissue...in the Guatemalan series. This can be contrasted with the much less pronounced tendency for Guatemalan placentas to contain a smaller amount of each biochemical constituent." "On analyzing the data according to length of gestation, weight of child, and weight of placenta, the only unequivocal relationship was that between the weight of the child and placental composition. There was a positive correlation between the weight of the child and the total amount of DNA, RNA, and protein in the placentas of each group." Other findings and factors contributing to these findings are explained.

196. Lagos, Jorge C.: *Differential Diagnosis in Pediatric Neurology*. Boston: Little, Brown and Co., 1971. 346 pp.

Individually examined in the 19 chapters of this book are some "of the most common neurologic presenting complaints or clinical situations encountered in the practice of pediatrics." The volume is intended to be practical in nature and to provide simple and concise descriptions of neurological conditions seen in the child. Topics discussed include "chronic muscle weakness," "spastic weakness," "ataxia," "abnormal movement and posture," "nonprogressive psychomotor retardation," "seizures in the neonate," and "seizures in infancy and childhood." There are five appendices containing practical information on "neonatal reflexes and developmental milestones," commonly used drugs, emergency treatment, etc. Also included is a "Glossary of Eponymic Terms." Bibliographies follow each chapter.

197. Langley, Ivan I., moderator: "Resolved: That the Present System of Prenatal Care Is Inadequate," *American Journal of Obstetrics and Gynecology*, 113:558-568, June 15, 1972.

On these pages is contained the debate on this topic that was presented at the Thirty-Eighth Annual Meeting of the Pacific Coast Obstetrical and Gynecological Society held in Rancho La Costa, California on October 5-10, 1971. The speeches of Dr. Glen E. Hayden, speaking for the affirmative, Dr. Leon J. Shulman for the negative, and Dr. Charles E. Weber for the negative are included. Dr. William K. Graves was also listed as a debator for the affirmative.

198. Larks, S.D., and Larks, Golda G.: "Factors Associated With Birth Condition," *Biology of the Neonate*, 20:134-139, 1972.

The process is described whereby 29 perinatal factors, found to be related to the condition of the infant at birth, were identified. Also presented is a "useful predicting equation" in which these perinatal factors are used. The results are "stated directly in Apgar units."

199. Le Dune, Marthe A.: "Response to Glucagon in Small-For-Dates Hypoglycaemic and Non-hypoglycaemic Newborn Infants," *Archives of Disease in Childhood*, 47:754-759, October, 1972.

Previous research on the relationship between hepatic glycogen depletion and hypoglycemia is reviewed. In order to study this relationship glucagon tests were carried out as described on a group of hypoglycemic (15) and non-hypoglycemic (17) small-for-dates newborns. "The results suggest that glycogen depletion is an important factor in neonatal hypoglycaemia, and varies with the degree of hypoglycaemia. Hyperinsulinism was found in a proportion of hypoglycaemic infants, though there did not appear to be any correlation between the degree of hyperinsulinism and the severity of the glycogen depletion." Because the response to glucagon administration as described was variable, it was "not recommended as a therapeutic tool in neonatal hypoglycaemia."

200. Lee, K.H.: "Supervision of High-Risk Cases by Amnioscopy," *American Journal of Obstetrics and Gynecology*, 112:46-49, January 1, 1972.

Amnioscopy was conducted on 720 high-risk pregnant women in Hong Kong. The majority were cases of postmaturity and toxemia of pregnancy. In 39 of these cases the amnioscope failed to be passed. Of the 681 remaining cases meconium was seen in 67, and the liquor amnii was found to be scanty in 34 other cases. Few complications resulted. These are described as is the outcome of the study cases. "The effectiveness of amnioscopy in supervision of high-risk cases was confirmed by a significantly reduced rate of surgical induction of labor and a low perinatal mortality rate (4.1 per thousand) among these cases." These results are discussed.

201. Lemons, James A.; Kuhns, Lawrence R.; and Poznanski, Andrew: "Calcification of Fetal Teeth as an Index of Fetal Maturation," *American Journal of Obstetrics and Gynecology*, 114:628-630, November 1, 1972.

Radiologic examinations were made on 70 pregnant women one to two weeks before delivery in order to determine "fetal maturity by: (1) the presence or absence of distal femoral epiphyses (DFE) and (2) the extent of mineralization of the fetal teeth." The teeth were able to be visualized in only seven of these cases, and fetal maturation was accurately estimated. Usage of this method thus seems to be possible "only when the fetal head is not in the maternal pelvis" but may be helpful when used with other means of measuring gestational age. Two situations when the method might be particularly useful are listed.

202. Leonard, Patrick J.; Doyle, Eric; and Harrington, William: "Levels of Vitamin E in the Plasma of Newborn Infants and of the Mothers," *American Journal of Clinical Nutrition*, 25:480-484, May, 1972.

The relationship between neonatal vitamin E deficiency and neonatal disorders is discussed. In order to determine if a relationship exists between the vitamin E level of the neonate and that of his mother, "venous blood samples were collected from 554 mothers and cord blood samples from 540 of the infants." Plasma vitamin E levels were then determined as described. The vitamin E level was not found to be significantly influenced by the number of previous pregnancies, and no sexual differences with regard to the levels were noted. Neither was any significant difference found between the vitamin E levels of the premature infants (28) and those of other study infants. However, there was a relationship detected between the vitamin E level of the mother and that of her infant at birth. It is then concluded that determination of maternal vitamin E levels during pregnancy would detect those infants at risk of having low plasma vitamin E levels at birth. It is suggested that when a maternal level is noted to be below 0.7 mg./100 ml. in the last trimester of pregnancy, maternal vitamin E supplementation should be considered.

203. Letchworth, A.T., and Chard, T.: "Human Placental Lactogen Levels in Pre-Eclampsia," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:680-683, August, 1972.

The importance of and methods of identifying pre-eclamptic patients in whom there is fetal risk is briefly discussed. Human placental lactogen (HPL) levels were assayed as described in 55 patients with pre-eclampsia. Of these 55 patients, nine developed "fetal distress in labour and/or neonatal asphyxia." The basis upon which the pre-eclampsia was classified as being mild, moderate, or severe is presented. "The general conclusions were as follows: 1) the levels were lower than those in normal subjects; (2) the levels in mild pre-eclampsia were lower than those in the moderate and severe cases; (3) the levels were lower in multipara than in primipara." "Low levels of HPL were found in patients with fetal complications. However, since similar levels may be found in pre-eclampsia without such complications, it was not possible to reach definite conclusions on the value of HPL determinations as a predictor of fetal well-being." The need for further investigation is stated.

204. Letchworth, A.T., and Chard, T.: "Placental Lactogen Levels as a Screening Test for Fetal Distress and Neonatal Asphyxia," *Lancet*, 1:704-706, April 1, 1972.

Blood specimens were taken from 333 pregnant women at every antenatal visit, and human placental lactogen (H.P.L.) levels were simply determined as described. Two hundred of these pregnancies were considered to be normal while in 27 of the abnormal pregnancies, there were signs as described of fetal distress and/or neonatal asphyxia. The H.P.L. levels in this group of 27 were found to be significantly lower than in the normal pregnancy group. "Three or more levels of less than 4 µg. per ml. between the thirty-fifth and fortieth weeks of pregnancy indicate a 71% risk of fetal distress in labour or neonatal asphyxia. Levels about 5 µg. per ml. were associated with a very low frequency of these complications." It is suggested that H.P.L. levels be routinely determined in all pregnancies.

205. Lewicki, J., and Trzeciak, W.H.: "Investigations on the Arylsulfatase Activity of the Human Placenta. I. Placental Arylsulfatase Activity in Various Periods of Pregnancy," *American Journal of Obstetrics and Gynecology*, 112:881-885, April 1, 1972. (Series: For II see #206.)

One hundred placentas were studied from women who were between the sixth and forty-fourth weeks of pregnancy. Study methods are described. Arylsulfatase A activity was found to be two times higher than the activity of arylsulfatase B. "Both arylsulfatase activities have been shown to increase during pregnancy, the highest level being found in the twenty-fourth week, and then to decrease gradually, the lowest activity being recorded in postterm pregnancies. A correlation was found between the activity of arylsulfatase and the period of placental development. It was postulated that arylsulfatase activity could serve as an additional criterion for determining the maturity of the placenta."

206. Lewicki, J., and Trzeciak, W.H.: "Investigations on the Arylsulfatase Activity of the Human Placenta. II. Localization of Arylsulfatase Activity in the Developing Placenta," *American Journal of Obstetrics and Gynecology*, 112:886-889, April 1, 1972. (Series: For I see #205.)

Described is a study in which the subcellular distribution of arylsulfatase A and arylsulfatase B activities were investigated in the developing human placenta and the arylsulfatase activity in placental tissue was localized by using a described histochemical technique.

207. Light, Irwin J.; Keenan, William J.; and Sutherland, James M.: "Maternal Intravenous Glucose Administration as a Cause of Hypoglycemia in the Infant of the Diabetic Mother," *American Journal of Obstetrics and Gynecology*, 113:345-350, June 1, 1972.

The process that is thought to occur whereby hypoglycemia develops in the neonate of the diabetic mother is described. Eighteen infants of diabetic mothers were studied in order to determine "the effect of the cord blood glucose level on early neonatal glucose homeostasis." Methods are described. A series of significant relationships were determined. "The higher the cord blood glucose, the more rapid the disappearance of glucose, the lower the level to which the glucose concentration falls, and the greater the prevalence of hypoglycemia during the first 4 hours of life." Another finding was the fact that a high cord blood level was related to a rapid rate of administration of glucose to the diabetic mother prior to delivery. Other possible relationships are cited. "It is recommended that restriction of glucose administration to the diabetic mother during labor and delivery decreases the likelihood that the infant will develop early neonatal hypoglycemia.

208. Lin-Fu, Jane S.: "Undue Absorption of Lead Among Children - A New Look at an Old Problem," *New England Journal of Medicine*, 286:702-710, March 30, 1972.

The 'old problem' and pertinent developments are reviewed. "The purpose of this paper is to review briefly lead intake in children, studies of 'normal' blood lead levels, the prevalance of undue lead absorption among children living in old urban neighborhoods, and the importance of detecting children in the early stage of undue absorption." Studies dealing with neurologic sequelae are described. A lengthy list of references is presented.

209. Lippert, Frederick G., III: "A Long Leg Brace for Comprehensive Force Measurement; Design and Experimental Studies," *Acta Orthopaedica Scandinavica*, Supplement No. 138, 1971. 61 pp.

A project of the author is presented, the purpose of which "was to study the interactions between the brace and leg by the analysis of force-time histories recorded from selected ischial weight-bearing brace combinations." After a review of the pertinent literature, the test brace constructed, the experimental method used, and the results are described. "The project was divided into two basic parts: I. The design of a test brace, compatible instrumentation and reliable data acquisition and analysis techniques. II. The application of the test equipment and methods to a general investigation on selected ischial weight-bearing brace combinations." A 13-point summary and a bibliography are included along with many photographs, charts, etc.

210. Lippert, T.H.: "A Simple Device for Administering Drugs Directly to the Fetus During Birth," *American Journal of Obstetrics and Gynecology*, 112:1112-1113, April 15, 1972.

Such a device that enables the injection or infusion of medication subcutaneously into the fetus during birth is pictured and described. The possible employment of this instrument in cases of acidosis and hypoglycemia is briefly considered.

211. Lipsitz, Philip J.: "The Clinical and Biochemical Effects of Excess Magnesium in the Newborn," *Pediatrics*, 47:501-509, March, 1971.

Studied in two groups of toxemic mothers and their offspring were the effects of two methods of magnesium sulfate therapy. Group 1 consisted of 29 neonates of

27 toxemic mothers who received intravenous magnesium sulfate as described. Group II contained eight neonates of eight toxemic mothers who received intramuscular magnesium sulfate as described. Methods of study and much resultant data on the mothers and newborns are presented. "When magnesium sulfate is given intramuscularly to the mother, the newborn is usually not compromised by excess magnesium but may be affected. If continuous intravenous infusion of magnesium sulfate is used and especially if given for more than 24 hours, one can anticipate a newborn manifesting all the signs of hypermagnesemia." Results from this and several other related studies are discussed, as is the management of the newborn who has been compromised by an excess of magnesium.

212. Livingston, Samuel: *Comprehensive Management of Epilepsy in Infancy, Childhood and Adolescence.* Springfield, Ill.: C.C. Thomas, 1972. 657 pp.

The purpose of this book as stated in the preface "is twofold: (a) to acquaint the practicing physician with the various therapeutic regimens currently available for the control of epileptic seizures and (b) to supply the physician with information which he can utilize in his management of the 'whole patient.'" The author has used as the basis for this book data from his follow-up of approximately 20,000 epileptic patients. In the 20 chapters comprising the book the medical aspects of epilepsy are comprehensively presented, followed by consideration of the management and treatment aspects, including the medical, dietary, and surgical factors pertinent to treatment. The personality of the epileptic child is considered, including chapters concerned with the hyperkinetic behavior syndrome and the neuropsychiatric aspects of epilepsy. In Chapters 13 through 17 the "education of the epileptic," the "employment of the epileptic," "automobile driving and epilepsy," the "legal aspects of epilepsy," and "insurance for the epileptic" are discussed. Progress in the area of epilepsy and prognosis are considered in Chapters 18 and 19, respectively, and Chapter 20 is entitled, "Injuries and Longevity Relative to Epilepsy." Many lists of references are included throughout the text. Inserted in the front of the volume is a fold-out chart entitled, "Drugs Currently Employed for the Control of Epileptic Seizures at the Johns Hopkins Hospital Epilepsy Clinic."

213. Lloyd-Roberts, G.C.: *Orthopaedics in Infancy and Childhood.* New York: Appleton-Century-Crofts, 1971. 337 pp.

Chapter 7 of this book is especially pertinent to this bibliography. It is concerned with "Disorders of the Central Nervous System" including cerebral palsy. "The Child as an Orthopaedic Patient" is the subject of Chapter 1. In Chapters 2 through 8 various relevant diseases and disorders are examined. In Chapters 9 through 15 various parts of the body are considered in relation to pediatric orthopedics. "General Topics" are discussed in Chapter 16 including delayed walking and limping. References are listed.

214. Loring, James, ed.: *Assessment of the Cerebral Palsied Child for Education.* London: Spastics Society in association with William Heineman, 1968. 112 pp.

The nine papers in this volume were selected from the proceedings of an international seminar held at University College, Oxford in April, 1967. Subjects included "The Psychological Assessment of Pre-School Spastic Children" by Norah

Gibbs, "The Partially Hearing Spastic Child" by I. G. Taylor, "The Early Assessment of Visual Defects" by Peter A. Gardiner, "The Need for Continuous Assessment" by A. I. Rabinowitz, and "Educational Implications of Psychopathology in Brain-Injured Children" by William Cruickshank. Bibliographies follow each article.

215. Low, J.A.; Boston, R.W.; and Pancham, S.R.: "Fetal Asphyxia During the Intrapartum Period in Intrauterine Growth-Retarded Infants," *American Journal of Obstetrics and Gynecology*, 113:351-357, June 1, 1972.

Two hundred fifty-one obstetric patients, who were selected because of concern for possible fetal asphyxia, were included in a study "to demonstrate the frequency and extent of fetal asphyxia during the intrapartum period in the fetus compromised by intrauterine growth retardation." Methods whereby these patients were monitored and assessed are described. Of the offspring of these women, 31 were classified as being intrauterine growth retarded (IUGR). Approximately 50 percent of these IUGR infants were demonstrated to have "fetal asphyxia with moderate or severe metabolic acidosis of delivery," as defined. This condition "occurred more frequently in the primiparous obstetric patient with a premature delivery complicated by severe toxemia" and coincided with "a significant decrease in 1 and 5 minute Apgar scores" in the severely affected infants.

216. Low, Niels L.: "Cerebral Palsy," *Medical Clinics of North America*, 56:1273-1279, November, 1972.

The aspects of etiology, pathology, clinical classification, associated conditions, incidence, laboratory findings, and treatment are examined.

217. Lubchenco, L.O.; Delivoria-Papadopoulos, M.; and Searls, D.: "Long-Term Follow-Up Studies of Prematurely Born Infants. II. Influence of Birth Weight and Gestational Age on Sequelae," *Journal of Pediatrics*, 80:509-512, March, 1972. (Series: For I see #218.)

A group of 91 children, who had had birth weights of 1,500 gm. or less, were thoroughly examined at age ten. The independent relationships between these examination results and the birth weight, the gestational age, the birth weight and gestational age combined, and the pattern of intrauterine growth for each of these children were determined. "The over-all incidence of handicaps was 66 per cent; 50 per cent had moderate to severe handicaps. The highest incidence of moderate to severe handicaps (85 per cent), occurred in the smallest infants of shortest gestational age, and the lowest incidence (20 per cent), in infants of 1,450 Gm. and 33 weeks' gestation." The need for the classification of infants by birth weight, by gestational age, and by intrauterine growth pattern in such follow-up studies is stressed.

218. Lubchenco, L.O.; Delivoria-Papadopoulos, M.; Butterfield, L.J.; French, J.H.; Metcalf, D.; Hix, I.E., Jr.; Danick, J.; Dodds, J.; Downs, M.; and Freeland, E.: "Long-Term Follow-Up Studies of Prematurely Born Infants. I. Relationship of Handicaps to Nursery Routines," *Journal of Pediatrics*, 80:501-508, March, 1972. (Series: For II see #217.)

A group of 133 children, who had had birth weights of 1,500 gm. or less, were given thorough examinations at age ten in order to determine their developmental status and to relate this to the postnatal nursery practices at that time. Results are presented with regard to the amount of ambient oxygen to which the infants were exposed and their subsequent outcome, the administration of antimicrobial drugs to these infants and the subsequent occurrence in them of hearing loss, the feeding practices concerning caloric intake and their subsequent I.Q., and "other findings."

219. Lucey, Jerold F.: "The Unsolved Problem of Kernicterus in the Susceptible Low Birth Weight Infant," *Pediatrics*, 49:646-647, May, 1972.

Dr. Lucey presents a listing of "factors identifying the low birth weight infant highly susceptible to kernicterus" and then suggests "that the highly susceptible infants, and even those at lesser risk, be selected shortly after birth and placed on phototherapy before the bilirubin has risen to 10 mg/100 ml."

220. McCracken, George H., Jr., and Luby, James P.: "Cytosine Arabinoside in the Treatment of Congenital Cytomegalic Inclusion Disease," *Journal of Pediatrics*, 80:488-495, March, 1972.

The cases of three infants, who had congenital cytomegalic inclusion disease and who were treated as described with cytosine arabinoside, are described. This therapy "only transiently depressed virus excretion, caused hematologic and hepatic toxicity, and had no appreciable beneficial effect on the clinical course of disseminated cytomegalovirus infection in 3 infants presented in this report."

221. McDermott, John F., Jr., and Akina, Eleanore: "Understanding and Improving the Personality Development of Children With Physical Handicaps," *Clinical Pediatrics*, 11:130-134, March, 1972.

The importance in a handicapped child's personality development of understanding and taking into account a child's handicap and its consequences from the child's point of view rather than from the view of the involved adult is discussed. Common categories of reactions of the parent to his child's handicap are listed. The child with an orthopedic handicap is focused upon to illustrate some of the psychological implications of handicapping conditions. The basic "motor urge" of childhood and its development with age is explained and discussed in relation to its effects on personality development in the child with a motor handicap. Also considered are problems of parents in dealing with handicaps and the role of the pediatrician in early intervention and guidance. Some specific recommendations are presented.

222. Macdonald, R.R.: "Impairment of Intrauterine Growth--Early Warning by Cervical Mucus Ferning," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:1087-1090, December, 1972.

Hormonal deficiency was assessed throughout pregnancy by means of cervical mucus smears, vaginal cytology, and total estrogen excretion in 128 patients who were considered to be at extra risk of fetal loss. The patients and the methods are described. "There was a significatnly higher incidence of light-for-dates babies when cervical mucus ferning was noted early in pregnancy and persisted or recurred after 16 weeks." It is concluded that assessment of cervical mucus ferning would be a means for the early detection of placental insufficiency and would permit more intensive study of these patients.

223. McLaughlin, Gary W.; Kirby, Robert R.; Kemmerer, William T.; and deLemos, Robert A.: "Indirect Measurement of Blood Pressure in Infants Utilizing Doppler Ultrasound," *Journal of Pediatrics*, 79:300-303, August, 1971.

A study is described in which blood pressure was detected in 15 neonates by using the Doppler Ultrasound method and also by using direct arterial pressure measurement. Results with the two methods were compared and the use of the Doppler technique "for accurate indirect measurement of systolic blood pressure of infants" was supported.

224. MacLennan, Alastair H.; Sharp, Frank; and Shaw-Dunn, John: "The Ultrastructure of Human Trophoblast in Spontaneous and Induced Hypoxia Using a System of Organ Culture," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:113-121, February, 1972.

With all methods described, placental villi were obtained from the placentas of uncomplicated pregnancies, were maintained in organ cultures in either well-oxygenated (26 percent oxygen) or hypoxic conditions (six percent oxygen), and were compared with fresh, normal placental villi and with the placental villi obtained from a patient who demonstrated signs of severe placental insufficiency. Specimens were examined using electron microscopy. The placenta samples that were maintained in the well-oxygenated environment differed only slightly from the samples of fresh placenta up to 96 hours. Changes are described. The samples maintained in the hypoxic environment showed quick and numerous described changes, and the samples from the patient with placental insufficiency "showed changes remarkably similar to the in vitro changes in villi maintained in organ culture under hypoxic conditions." "These experimentally produced changes in hypoxia are very similar to the ultrastructural placental abnormalities already described in pre-eclampsia, and more so to the placental abnormalities in placental insufficiency, which are described here for the first time. These similarities suggested that hypoxia is a primary aetiological factor in these conditions rather than an effect of the primary disease process." Several photographs of the samples are included.

225. McMichael, Joan K.: *Handicap; A Study of Physically Handicapped Children and Their Families.* [Pittsburgh]: University of Pittsburgh Press, 1971. 208 pp.

Reported in this monograph are the findings from a survey conducted on 50 severely handicapped children, who were attending a special school for physically handicapped children, and their families. After describing the survey and the setting of the school, the author discusses the medical, educational, social, and emotional problems of these children. The emotional problems of their families, the factors that influence the emotional adjustment of both the handicapped child and his parents, and the "treatment, supervision, and support" given these children are also examined. The survey is summarized and recommendations are made in the final chapter. There are a total of eight appendices in which are presented some of the forms, questionnaires, etc. used in the survey.

226. Maisels, M. Jeffrey: "Bilirubin; On Understanding and Influencing Its Metabolism in the Newborn Infant," *Pediatric Clinics of North America*, 19:447-501, May, 1972.

Bilirubin metabolism in the fetus and newborn is reviewed with causes and management of "'physiologic' jaundice" or "transient hyperbilirubinemia" in the newborn discussed. Kernicterus and its prevention are then considered. The normal binding of bilirubin to albumin, the displacement of bilirubin from albumin under abnormal neonatal conditions, the crossing of unbound bilirubin into the brain, and the resultant development of kernicterus in the newborn are explained. The risk of kernicterus, "factors influencing the risk of kernicterus," and methods for measuring the albumin binding capacity are described. With regard to the management of hyperbilirubinemia, and thus the prevention of kernicterus, three methods are listed and discussed in detail. The first of these is "the mechanical removal of bilirubin by means of exchange transfusion," the second is "the acceleration of normal metabolic pathways for bilirubin excretion by pharmacologic means" such as phenobarbital, and the third method is "the use of alternative pathways, which normally play only a minor role, for bilirubin excretion" such as is done in phototherapy. A great number of research studies are mentioned throughout the article, and a list of 413 references on the subject follows the text.

227. Maisels, M. Jeffrey; Pathak, Ambadas; and Nelson, Nicholas M.: "The Effect of Exchange Transfusion on Endogenous Carbon Monoxide Production in Erythroblastotic Infants," *Journal of Pediatrics*, 81:705-709, October, 1972.

The fact that the serum bilirubin level frequently rises after an exchange transfusion in such infants and thus necessitates further transfusions is discussed. Also explained is the rationale behind determining endogenous carbon monoxide (CO) production in order to determine heme turnover and bilirubin production. The method used to measure CO production is briefly described. This method was used to measure CO production in six infants with erythroblastosis fetalis before and after exchange transfusions. In all cases the CO production was found to be "markedly increased before the first exchange transfusion and remained elevated until two, or in one case until three, exchange transfusions had been completed." "Normal rates of carbon monoxide production were found when falling levels of serum bilirubin concentration indicated that further exchange transfusions were not necessary." Among the discussed implications of these results is "that a continued increase in heme turnover is largely responsible for the 'late' bilirubin rebound which occurs after exchange transfusions."

228. Makowski, Edgar L.; Schneider, Jack M.; Tsoulos, Nicholas G.; Colwill, James R.; Battaglia, Frederick C.; and Meschia, Giacomo: "Cerebral Blood Flow, Oxygen Consumption, and Glucose Utilization of Fetal Lambs in Utero," *American Journal of Obstetrics and Gynecology*, 114:292-303, October 1, 1972.

It is stated that "neurologic damage from various complications of pregnancy may be avoidable as we gain more understanding of the factors regulating fetal cerebral metabolism." In order that this understanding might be increased, a microsphere technique for studying cerebral blood flow and metabolism in animals was developed. This method and the results obtained on lambs are presented in this article. The findings are related to those observed in man. A discussion is conducted and presented after the text of the article.

229. Mann, Leon I.; Carmichael, Andrew; and Duchin, Sybil: "The Effect of Head Compression on FHR, Brain Metabolism and Function," *Obstetrics and Gynecology*, 39:721-726, May, 1972.

Other research in this area is reviewed. Thirty experiments were conducted on 15 sheep fetuses. All methods, including those of applying force to the fetal head, are described. Results are reported with regard to the EEG findings during and after head compression, the oxygen tension and pH levels during head compression, cardiovascular changes, intracerebral pressure changes in three experiments, changes seen in the cerebral metabolic rate as a result of head compression, and the findings during the recovery period following head compression. "Cerebral oxygen consumption decreased markedly as cerebral blood flow was significantly impaired by the increase in intracerebral pressure and vascular resistance. A fetal bradycardia or tachycardia occurred in 76% of the experiments. The fetal EEG showed a drop-out of faster frequencies, slowing and a decrease in amplitude prior to the onset of an isoelectric (flat) stage. All parameters recovered rapidly after the episode of cerebral ischemia caused by head compression." These results are discussed, and the question is raised as to whether or not "head compression during labor and delivery has a detrimental effect on eventual motor and mental function of the child."

230. Mann, Leon I.; Zwies, Alfred; Duchin, Sybil; and Newman, Maia: "Human Fetal Electroencephalography: Application of a Vacuum Electrode," *American Journal of Obstetrics and Gynecology*, 114:898-903, December 1, 1972.

The developments in the field of human fetal electroencephalography are reviewed. It has been found to be "a fairly sensitive indicator of fetal brain function during labor and delivery." Pictured and described is a new vacuum electrode for use in fetal electroencephalography in which suction is employed "to hold a silver disk against the fetal vertex." The advantages of the electrode are enumerated, and preliminary results on 50 patients are reported. "The introduction of fetal electroencephalography as a noninvasive fetal monitoring technique has stimulated renewed interest in the effect of labor and delivery on fetal brain function and the eventual neurological and psychological functioning of the child. As further experience is gained by investigators interested in this aspect of fetal life, a clearer understanding of the role of obstetric factors in the etiology of brain damage should evolve."

231. Manning, Jennifer: "Facilitation of Movement--the Bobath Approach," *Physiotherapy*, 58:403-408, December, 1972.

The basic concepts of the normal postural reflex mechanism are discussed with the development of postural reactions, the relationship of sensation and learning, and the relationship of automatic and voluntary movements described. The principles of the facilitation of movement treatment technique, as developed by the Bobaths, are then presented. Listed are "points to remember when facilitating spontaneous movements," and some of the facilitation techniques are explained and pictured.

232. Mannor, Shlomo M.; Serr, David M.; Tamari, Isaschar; Meshorer, Asher; and Frei, Ephraim H.: "The Safety of Ultrasound in Fetal Monitoring," *American Journal of Obstetrics and Gynecology*, 113:653-661, July 1, 1972.

The medical use of ultrasound is reviewed. An ultrasonic system which was designed and built for this study on the safety of ultrasound is described and pictured. Methods employed on the mice used in the study are also presented. Among the factors studied were the uterine temperature rise caused by ultrasonic irradiation; the biological effect of ultrasound, including the macroscopic and microscopic structural changes; the teratogenic effect of ultrasound; and the effect of ultrasound on fetal chromosomes. "Since no harmful effects were found with an intensity used in these series of experiments (490 mW. per square centimeter), which is 25 to 100 times higher than used in the commercially available ultrasonic fetal monitors, it is suggested that the latter might be retarded as safe. Although the above experimental results indicate the safety of the ultrasonic Doppler fetal monitoring system, it is important to realize that if full advantage is to be taken of the proposed system, repeated experiments are needed and especially the accumulation of data concerning the influence of prolonged ultrasonic exposures to the developing human fetus."

233. Manocha, Sohan L.: *Malnutrition and Retarded Development*. Springfield, Ill.: C.C. Thomas, 1972. 382 pp.

"This book is a general discussion on how malnutrition affects the human organism." In the first chapter is considered the malnutrition present in the world and the diseases and retardation that result. The effects of malnutrition on the brain and on mental development are discussed in Chapters II and III, respectively. The important interrelationship of environmental factors is dealt with in Chapter IV, and the effects of maternal malnutrition on the fetus and neonate is the subject of Chapter V. "Malnutrition and Food Habits" are discussed in Chapter VI while the final three chapters are essentially devoted to the fight against malnutrition and its consequences through prevention, treatment, and education. Reference lists follow each chapter.

234. Marx, Orrin, comp.: *Motor Activities; Newborn to Six Years of Age*. Washington, D.C.: American Association for Health, Physical Education, and Recreation. Unit on Programs for the Handicapped, [1971]. 17 pp.

This paper contains a list of the "developmental activities" used in the Physical Ability Rating Scale which was developed in the Physical Education Department of the University Hospital School at the University of Iowa, Iowa City. This Scale has been used in the evaluation of physically handicapped children at that facility. The developmental activities have been grouped according to the month or months, from birth to age six years, "in which nonhandicapped children are most likely to perform" them. The listing thus gives "an overall view" of the progression of the physical/motor ability of young children.

235. Marx, Orrin H.: *Physical Activities for Handicapped Children in the Home*. Iowa City, Iowa: University of Iowa, 1972. 72 pp.

This is a manual for parents of physically handicapped children which is intended to guide them and to suggest to them basic activities and physical skills for the child to learn and practice at home. In the "Introduction," guidelines for planning a home physical activity program for the handicapped child are listed. Also listed are 17 "suggestions in teaching physical skills." Then 14 "basic activities," presented in order of their developmental progression from head lift to walking, are described for the parent. On pages 15 through 35 a large number of "elementary skills" for the handicapped child are presented. Among these are warm-up exercises, throwing and catching skills, and skills that involve kicking, climbing, pushing and pulling, balancing, and hopping and jumping. The next section of the manual deals with "braces for the small child." In Part I are described the procedures for applying and removing the braces, and in Part II the "care of braces" is discussed. Following this section are several pages of photographs which illustrate "appliances and apparatus used in training physically handicapped children," photographs of "physical education equipment used in training physically handicapped children," and "illustrations for home construction of apparatus."

236. Matev, Ivan B.: "Surgical Treatment of Flexion-Adduction Contracture of the Thumb in Cerebral Palsy," *Acta Orthopaedica Scandinavica*, 41:4:439-445, 1970.

Such a contracture is described, two popular treatment methods are listed, and the treatment method of the author is presented. "The chief benefit of the operative procedure applied is the attaining of correction of the deformity with preservation of function and normal appearance of the thumb without fusion of any of its joint." Results of this procedure on 21 cerebral palsied children and adults, followed for from six months to seven years after surgery are reviewed. The deformity was correct in 18 cases. "Six of them regained both grasp and pinch. Unsatisfactory results are observed in 3 patients, two of them with athetosis."

237. Mathur, R.S.; Leaming, A.B.; and Williamson, H.O.: "A Simplified Method for Estimation of Estriol in Pregnancy Plasma," *American Journal of Obstetrics and Gynecology*, 113:1120-1129, August 15, 1972.

A fluorometric method for such estimation is presented. Results are given with regard to the relationship found between the level of estriol concentration determined by the presented method and the week of gestation, the effect some listed drugs had on the estimation of estriol by the presented method, the comparison of estriol estimated in amniotic fluid and in plasma of three patients, and the comparison of plasma samples taken from the fetal umbilical artery and vein in four patients. The method is considered to be "sensitive, reproducible, and rapid." A discussion follows the article.

238. Mattsson, Ake: "Long-Term Physical Illness in Childhood: A Challenge to Psychological Adaptation," *Pediatrics*, 50:801-811, November, 1972.

A classification of long-term childhood disorders is presented. The common causes of emotional stress in such children are then reviewed, and the principle methods by which such children and their families adapt themselves to the long-term illness are described. Discussed in the "Conclusion" are the two factors upon which "successful psychological management of a child with a long-term physical illness and his family" depend. These are: "(1) the continuous 'personalized' support and counselling by the physician" and "(2) the parents' acceptance of the disease with its uncertain course and impact on the family, which implies that they have gradually mastered their conflicting emotions aroused by their child's ailment."

239. Maurer, Harold M., and Caul, Joyce: "Influence of Bilirubin on Human Platelets," *Pediatric Research*, 6:136-144, February, 1972.

This influence was studied by using a spectrophotometric technique. Blood samples were collected as described and studies were conducted on either platelets in suspension or on platelet-rich plasma. Also presented are the methods of preparing the bilirubin and albumin solutions and of assaying adenine nucleotides. Results "showed that unbound unconjugated bilirubin at low concentration (0.5 mg/100 ml) causes yellow staining and aggregation of washed human platelets, whereas bilirubin bound to albumin and bilirubin altered by exposure to light have little, if any, of these effects on platelets." "Less intense aggregation occurred in some but not all samples of platelet-rich plasma incubated with bilirubin and only at bilirubin levels of 10 mg/100 ml or higher." These and other results are discussed, and implications are considered. "The data presented suggest that bilirubin influences platelet function. It was tempting to speculate that the effect of bilirubin on platelets could play a role in producing intravascular thrombosis or hemorrhage, or both, in severe hyperbilirubinemia."

240. Menkes, John H.; Welcher, Doris W.; Levi, Helene S.; Dallas, Joseph; and Gretsky, Neil E.: "Relationship of Elevated Blood Tyrosine to the Ultimate Intellectual Performance of Premature Infants," *Pediatrics*, 49:218-224, February, 1972.

Tyrosinemia and its occurrence in premature infants are explained. Seventy-one premature infants were included in a study to determine any detrimental effects that elevated blood tyrosine levels may have on the developing nervous system. Follow-up exams were performed on 62 of these infants at between 14 to 17 months of age, and no difference in the incidence of neurological abnormalities between the high and low tyrosine groups was found. Another follow-up study was conducted on 62 of these children at between seven to eight years of age with "a full psychological battery" being administered to 55 children. These tests are described. "No significant difference in the intellectual performance of the entire group of high and low tyrosine infants was observed." However, in the group of children who had had high blood tyrosine levels and had weighed over 2000 gm. or more at birth, "significantly lower scores on the performance scale of the WISC test, in particular in subtests pertaining to Object Assembly, Picture Completion, and Picture Assembly" were noted. A possible relationship between these findings and the incidence of 'minimal brain damage' is discussed.

241. Michelsson, Katarina: "Cry Analyses of Symptomless Low Birth Weight Neonates and of Asphyxiated Newborn Infants," *Acta Paediatrica Scandinavica*, Supplement 216, 1971. 45 pp.

After reviewing the literature on asphyxia in infants and crying in infants, the author describes an investigation in which the crying of 105 low birth weight, normal infants and 205 asphyxiated newborn infants was studied. The low birth weight infants were further divided into 30 small-for-date and 70 premature infants, and the 205 asphyxiated neonates were further divided into those 80 who had "peripheral respiratory difficulties" and those 125 whose asphyxia resulted from "failure of the respiratory center." In addition 50 healthy, full-term neonates comprised a control group. The three purposes of the study, these groups of neonates, and their follow-up at between one and one-half to three years of age are described. Also explained are all the methods used to record, measure, and determine the characteristics of the crying. Seventeen cry characteristics were analyzed. Much data are presented as are conclusions. While the cry of the small-for-date neonate was very similar to that of the control group, the crying of the premature neonates, the neonates with dominating peripheral respiratory distress, and the neonates with dominating central respiratory failure each differed significantly from the control group in several enumerated respects. "In those cry-characteristics where the asphyxiated neonates differed significantly from the controls, the differences were often more marked the more severely the newborn had been asphyxiated." A bibliography is included.

242. Milner, R.D.G.: "Neonatal Hypoglycaemia; A Critical Reappraisal," *Archives of Disease in Childhood*, 47:679-682, October, 1972.

The causes, consequences, and treatment of neonatal hypoglycemia are reviewed with many studies in the area mentioned.

243. Milner, R.D.G.; Fekete, M.; and Assan, R.: "Glucagon, Insulin, and Growth Hormone Response to Exchange Transfusion in Premature and Term Infants," *Archives of Disease in Childhood*, 47:186-189, April, 1972.

Exchange transfusions were performed on two groups of infants, one of gestational age of 37 or more weeks (term) and the other of 36 weeks or less gestational age (premature) for the purpose of using "exchange transfusions as a tool to study the effect of gestational age on the secretion of insulin, glucagon, and growth hormone." Findings demonstrated "that premature infants secrete more growth hormone and less insulin during exchange transfusion than term infants." "No difference between the 2 groups was detected in glucagon secretion."

244. Milner, R.D.G.; Fekete, M.; Assan, R.; and Hodge, J.S.: "Effect of Glucose on Plasma Glucagon, Growth Hormone and Insulin in Exchange Transfusion," *Archives of Disease in Childhood*, 47:179-185, April, 1972.

In order to study this effect, exchange transfusions were performed on normal term neonates and on small-for-dates neonates using either blood preserved with acid citrate and glucose or with acid citrate alone. All of the infants had mild or moderate erthroblastosis. Presented are clinical data on the infants, all methods used, and the results with regard to insulin, growth hormone, free fatty acids, glycerol, and glucagon levels in the two groups of infants when using the two types of exchange transfusion. These levels were found to be quite similar in both the normal and the small-for-dates infants, but there were definite differences in these levels when the two types of exchange transfusion were used.

245. Monif, Gilles R.G.: *Viral Infections of the Human Fetus*. London: Macmillan, 1969. 164 pp.

Discussed with regard to the pathogenesis, clinicopathologic correlations, diagnosis, and prophylaxis are the viruses that infect the fetus and thus influence perinatal mortality and morbidity. The topic is considered generally in Chapter 1. This is then followed by examination in separate chapters of the picornaviruses, myxoviruses, herpesviruses, poxviruses and unclassified viruses. In Chapter 7 the relationship between viruses and congenital malformations is discussed by Dr. Owen M. Rennert. Reference lists follow each section of the text.

246. Monif, Gilles R.G.; Egan, Edmund A., II; Held, Berel; and Eitzman, Donald V.: "The Correlation of Maternal Cytomegalovirus Infection During Varying Stages in Gestation With Neonatal Involvement," *Journal of Pediatrics*, 80:17-20, January, 1972.

The following two questions were focused upon in the study described in this article: "(1) Does primary maternal infection during gestation invariably result in involvement of the products of conception? (2) When fetal infection occurs, is there any correlation between the duration of infection in utero and the clinical manifestations observed in the newborn infant?" With all methods described, a group of pregnant women were prospectively studied during pregnancy to determine if maternal cytomegalovirus infection was present. When evidence of such infection was found in the women, the cord serum of their infants was analyzed as described. "In the four cases of maternal infection identified, the cord sera were found to be positive by immunofluorescence for anticytomegalovirus IgM immunoglobulins and correlated with recovery of virus in the immediate neonatal period or beyond. There was a direct correlation between severity of neonatal infection and presumed duration of disease in utero. These observations suggest that cytomegalovirus is capable of infecting the products of conception irrespective of gestational age, and that the clinical manifestations of congenital cytomegalovirus infection appear to be primarily a reflection of the duration of infection in utero." The characteristic features of central nervous system involvement are described.

247. Monod, N.; Pajot, N.; and Guidasci, S.: "The Neonatal EEG: Statistical Studies and Prognostic Value in Full-Term and Pre-Term Babies," *Electroencephalography and Clinical Neurophysiology*, 32:529-544, May, 1972.

Followed for from three to 14 years with regard to clinical development were 270 children from whom 691 EEGs had been obtained during the first month of their lives. Methods of recording the neonatal EEGs are described. On the basis of the results at follow-up the children were placed in four groups: "Group A: Normal children," "Group B: Children with minor sequelae," "Group C: Children with major sequelae," and "Group D: Early death." The EEGs of Groups A and B were then compared to those of Groups C and D. Results of full-term and preterm infants were also compared. The findings are presented with regard to "general observations"; the EEG factors found to be related to normal development; the EEG factors found to be related to abnormal development such as "abnormalities of background activity," "abnormalities in spatial or temporal organization of background activity," and "abnormal superimposed patterns"; and some of the "EEG and clinical data related to variable development." Results are discussed and summarized.

248. Montgomery, Patricia, and Halpern, Daniel: "Quantitative Evaluation of Upper Extremity Activity in Patients With Cerebral Palsy," *Physical Therapy*, 52:170-175, February, 1972.

The need for a quantitative method for the measurement of motor activity in order to objectively measure the results of treatment in cerebral palsied patients is stated. Then described is the equipment, the procedure, and two methods of analyzing the data accumulated in a quantitative method of evaluating the motor activity of the upper extremity in cerebral palsied patients. Involved is the recording of the components of movement "by attaching flashing lights to the body segments involved and photographing designated movements." "The photographs obtained are composed of a series of flashes outlining the movement in one plane. These light tracings can be subjected to quantitative analyses." Advantages and disadvantages of the method are discussed.

249. Moosa, A., and Dubowitz, V.: "Assessment of Gestational Age in Newborn Infants: Nerve Conduction Velocity versus Maturity Score," *Developmental Medicine and Child Neurology*, 14:290-295, June, 1972.

Some of the clinical and neurophysiological criteria used to assess gestational age are briefly reviewed. A study is then described in which two methods of assessing gestational age are compared. These are nerve conduction velocity measurement and the obtaining of a maturity score using clinical criteria. Both methods were used to determine the gestational age of 43 neonates whose gestational age was certain and 75 neonates whose gestational age was uncertain. The advantages and disadvantages of both methods are pointed out. It was concluded that "both the clinical maturity score and the conduction velocity of a peripheral nerve can be used to assess gestational age to within 2-3 weeks." "The maturity score is slightly more accurate than the conduction velocity but the accuracy of prediction from the conduction velocity can be increased by examining more than one nerve."

250. Morishima, Hisayo O.; Heymann, Michael A.; Rudolph, Abraham M.; and Barrett, Cynthia T.: "Toxicity of Lidocaine in the Fetal and Newborn Lamb and Its Relationship to Asphyxia," *American Journal of Obstetrics and Gynecology*, 112: 72-79, January 1, 1972.

The possible toxic reactions of the fetus and neonate to regional anesthesia are discussed. In order to study the toxic effects of lidocaine, lidocaine hydrochloride was administered as described to seven lamb fetuses and to six newborn lambs, some of whom had been asphyxiated. Results of the administration to the fetuses and to the newborns are presented. "Transient bradycardia followed by tachycardia occurred in all lambs immediately following intravenous infusion of lidocaine. This tachycardia was maintained until cardiovascular failure occurred. Tolerance of the fetus to lidocaine was higher than that of the newborn lamb, but it was reduced in both by asphyxia." Implications are considered.

251. Morris, P.R., and Whiting, H.T.A.: *Motor Impairment and Compensatory Education.* Philadelphia: Lea & Febiger, 1971. 256 pp.

The educational and psychological rather than the neurological aspects of motor impairment in children are emphasized in this volume. In Chapter 1 the term, "motor impairment" is discussed and considered to be "a misnomer" because it is not an isolated function. Etiology, the relationship between "Motor Impairment and Intellectual Development," and the relationship of "Motor Impairment and the Socialisation Process" are discussed in Chapters 2, 3, and 4, respectively. "Body Concept," its development, assessment, and compensatory education in children having brain dysfunction, is the subject of Chapter 5. Then considered in

Chapters 6 and 7 are the assessment and the treatment, or "Compensatory Education," of children with brain dysfunction. Several treatment approaches are described, but no preference is shown. References are listed after each chapter.

252. Mostafawy, A.: *Pediatric Sonoencephalography; The Practical Use of Ultrasonic Echoes in the Diagnosis of Childhood Intracranial Disorders.* Berlin, New York: Springer-Verlag, 1971. 137 pp.

This book, containing three parts, is designed to cover "the entire spectrum of the sonoencephalographic examination in pediatrics." The diagnostic uses of the method are emphasized. In Part One, "General Sonoencephalography," the principles of the method, the examination processes in the pediatric patient, terms, and the normal and abnormal sonoencephalograms are described. Chapters in Part Two, "Special Sonoencephalography," deal with the uses of sonoencephalography in cases of brain trauma, hydrocephalus, intracranial space-occupying lesions, and "congenital and developmental defects and brain damage in early childhood." The reliability of the method in diagnosing childhood hydrocephalus and error sources in the use of the method are also considered. "The combined EEG and SEG" is the subject of Part Three. A bibliography is included.

253. Myers, R.E.; Hill, D.E.; Holt, A.B.; Scott, Rachel E.; Mellits, E.D.; and Cheek, D.B.: "Fetal Growth Retardation Produced by Experimental Placental Insufficiency in the Rhesus Monkey. I. Body Weight, Organ Size," *Biology of the Neonate*, 18:379-394, 1971. (Series: For II see #161.)

Fetal growth retardation, as defined, was surgically produced as described in seven of 13 experimental monkeys delivered by cesarean section and in two of three experimental monkeys delivered vaginally. Body and organ weights of the total experimental group, excluding those vaginally born, and of the seven intrauterine growth-retarded animals delivered by cesarean section were compared to those of controls. "A significant difference ($p < 0.005$) exists between the body weights of the controls and of the experimental group as a whole. Even more significant ($p < 0.001$) is the difference in the total body weights between the control and the intrauterine growth-retarded group." "Brain and kidney were the organs least affected whereas spleen and liver were the organs most affected by the growth retardation process." Similarities with human fetal growth retardation patterns and the need for further study are noted.

254. Myers, Ronald E.: "Two Patterns of Perinatal Brain Damage and Their Conditions of Occurrence," *American Journal of Obstetrics and Gynecology*, 112:246-276, January 15, 1972.

Described in detail in this lengthy, technical article are the clinical, the pathophysiological, the metabolic, and the brain pathologic consequences and the therapeutic considerations that occur under the two conditions of "acute total asphyxia" and "prolonged partial asphyxia," each followed by resuscitation and extended survival, in term monkey fetuses. After conditions of total asphyxia, damage was revealed in the brainstems of the animals. Such damage is described and illustrated. "This injury pattern fails to resemble that found after perinatal damage in the human being." After conditions of partial asphyxia, damage was revealed "to structures in the hemispheres." "This damage, when severe, may consist of a total bilateral hemispheral necrosis. With less severe injury, the necrosis may be restricted to the middle third of the paracentral region and/or to the basal ganglia. After prolonged survival, areas of necrosis are transformed into areas of nodular cortical atrophy, white matter sclerosis, and status marmoratus of the basal ganglia. These eventual long-term, static lesions closely compare to the lesions of human perinatal injury or cerebral palsy." Such damage is described and illustrated. Therapeutic considerations must be directed toward the prevention of fetal asphyxia. The importance of fetal and neonatal monitoring of high-risk cases is stressed. Important steps to be taken in the resuscitation of newborn infants are described.

255. Naiman, J. Lawrence: "Current Management of Hemolytic Disease of the Newborn Infant," *Journal of Pediatrics*, 80:1049-1059, June, 1972.

Three prerequisites deemed essential for the care of the Rh-sensitized woman and her infant are first listed and discussed. In summary these three are "an adequate diagnostic support system," "cooperation between obstetrician and pediatrician and other members of the team," and "a neonatal intensive care unit with adequate equipment and experienced personnel." Then individually considered are antenatal management, which is divided into three groups of Rh-negative pregnancy based on the varying severity; intrauterine transfusion, including the indications, the technique, the results, and the risks; the management of labor and delivery; the management of the infant, including evaluation, exchange transfusion, and special problems with certain infants; and the prevention of Rh-sensitization. Also briefly discussed are the A and B incompatibilities and other blood group incompatibilities.

256. Nathenson, Gerald; Cohen, Michael I.; Litt, Iris F.; and McNamara, Helen: "The Effect of Maternal Heroin Addiction on Neonatal Jaundice," *Journal of Pediatrics*, 81:899-903, November, 1972.

Studied with regard to serum bilirubin levels during the first four days of life were 18 heroin-addicted neonates and 18 matched control neonates. The control infants were found to have significantly higher mean total serum bilirubin levels during the first three days of life than did the heroin-addicted infants. These results "suggest the possibility of a mitigating effect of heroin on the accumulation of bilirubin in the addicted infants." Also studied with regard to hepatic bilirubin glucuronyl transferase activity were 50 morphine-addicted mice and 58 control mice. Methods are described. Significantly increased hepatic bilirubin glucuronyl transferase activity was found in the morphine-addicted animals compared to the controls and was further confirmed morphologically by examination of liver specimens of these animals using the electron microscope. Implications are considered, and it is speculated that "the significance of increased hepatic bilirubin glucuronyl transferase activity by opiates, established in mice and suggested in infants of heroin-addicted mothers, may extend beyond the metabolism of bilirubin to enhance excretion of other biologic substances requiring glucuronidation, or to induction of other enzyme systems within and beyond the liver."

257. National Association for Mental Health. Working-Party Report: "The Birth of An Abnormal Child: Telling the Parents," *Lancet*, 2:1075-1077, November 13, 1971.

Communication with the parents of an abnormal infant is considered, including "when to tell" and "how to tell" the parents. The timing, the techniques, and the importance of this communication for the future of the family and the child are among the aspects discussed.

258. Neville, Hans E., and Chase, H. Peter: "Undernutrition and Cerebellar Development," *Experimental Neurology*, 33:485-497, December, 1971.

This study on the cerebellar development of undernourished rats as compared to that of adequately nourished rats revealed a significant reduction of body and brain weights in the undernourished rats with the vermis being the primary area of the cerebellum affected by the malnutrition. "In 20-day-old malnourished rats, microscopic studies of the vermis showed increased density of Purkinje cells and internal granule cells and a disproportionately greater reduction in the size of the molecular layer compared to the internal granule cell layer. In rehabilitated adult rats, the increased density of Purkinje cells remained, but the size of the molecular layer compared to the internal granule cell layer was not different." Results are discussed.

259. Nichamin, Samuel J.: "Recognizing Minimal Cerebral Dysfunction in the Infant and Toddler," *Clinical Pediatrics*, 11:255-257, May, 1972.

Characteristics of the infant or toddler with "minimal cerebral dysfunction" are discussed. The author has observed that "starting with the neonatal period, most of the suspected minimal brain dysfunction infants display an intermittant, markedly deviant type of attentiveness, reflected either by (1) lethargy or (2) hyperactivity." Manifestations of these two types of behavior are described. Late speech development, defective speech, accident-proneness, and violent temper tantrums are also discussed as being characteristic behavior of such toddlers. The importance of the physician's response to the parents of such children in order to minimize feelings of guilt, despondency, etc., is explained. The drug, methylphenidate, is mentioned as a possible prescription in cases where "hyperactivity and deviant behavior are excessive."

260. Northrop, Gretajo; Ditzler, Joseph; Ryan, Will G.; and Wilbanks, George D.: "Estriol Excretion Profiles in Narcotic-Addicted Pregnant Women," *American Journal of Obstetrics and Gynecology*, 112:704-712, March 1, 1972.

Eight narcotic-addicted pregnant patients, who were maintained during pregnancy on methadone, were studied with regard to urinary estriol patterns in the third trimester of pregnancy. Other described tests were conducted on some of these women. Urinary estriol concentrations were found to remain low during pregnancy in the four women who continued to be maintained on narcotic drugs. When methadone was withdrawn during pregnancy in four women, a rapid increase in urinary estriol concentration was noted. The effects of ACTH, Metopirone, and dexamethasone on urinary estriol excretion are also reported. "It is concluded that careful consideration be given to the drugs a patient may be taken when fetal well-being is monitored with urinary estriol excretion."

261. Norton, Barbara J.; Bomze, Howard A.; and Chaplin, Hugh, Jr.: "An Approach to the Objective Measurement of Spasticity," *Physical Therapy*, 52:15-23, January, 1972.

Other methods that have been developed to objectively measure spasticity are reviewed. The electronic method devised by the authors, the procedures used, and the system of collecting the data are then explained. The pictured equipment "moves the subject's limb in a programmed manner and records the resistance to the movement." "During the movement, limb position, limb velocity, forces required to move the limb, and EMG data are recorded on a strip chart recorder and an XY recorder. Hysteresis loops reveal characteristic patterns for flexor and extensor resistance and for mixed flexor-extensor syndromes." Also reported are findings on measuring ten normal and nine hemiplegia subjects. Although the sample was too small for statistical analysis, general findings are discussed.

262. Norton, Yvonne: "Minimal Cerebral Dysfunction. Part I: Sensorimotor Feedback Deficits and Learning Problems," *American Journal of Occupational Therapy*, 26:135-146, April, 1972. (Series: For II see #263.)

The subject is introduced in this first of two articles, and background information on the "development of normal movement behavior and intelligence" is described with Piaget's concepts stressed. Implications for the occupational therapist in treating children with minimal brain dysfunction follow. Then the sensorimotor deficits and learning problems frequently seen in children with minimal brain dysfunction and the role of abnormal feedback in these deficits are examined. Many studies are cited.

263. Norton, Yvonne: "Minimal Cerebral Dysfunction. Part II: Modified Treatment and Evaluation of Movement," *American Journal of Occupational Therapy*, 26:186-199, May-June, 1972. (Series: For I see #262.)

In this second of two articles the neurodevelopmental approach of the Bobaths' is proposed and explained in a modified form as being "the preferred basic treatment for the clumsiness and in-coordination of minimal cerebral dysfunction." The organized, changing developmental reactions of the sensorimotor period and their deviations in children with minimal brain deficits are explained. Also discussed is the relationship between voluntary movement and the automatic postural and righting reactions. The author then presents a method of evaluating children with minimal brain dysfunction, including an assessment chart and test. "This evaluation will provide information on the quality of movement behavior and the inborn reactions retarding more advanced and coordinated performance in these children." These tools were adpated from others developed to evaluate cerebral palsied children. The role of the therapist in this method of treatment and evaluation is then described.

264. Oberman, J. William: "The High Risk Infant: Changing Concepts," *Clinical Proceedings; Children's Hospital National Medical Center*, 28:114-128, May, 1972.

Infant mortality in the United States is discussed as is the concept of prematurity. Relevant data and numerous studies are described. Then individually considered are specific high risk conditions including maternal diabetes, hypoglycemia, erythroblastosis, hyperbilirubinemia, and the effects of drugs. The roles of obstetric and social factors in perinatal mortality and morbidity, intensive care units, transport systems, newborn recovery rooms, and follow-up clinics are among the other topics discussed.

265. Odell, Gerald B.; Brown, Ralph S.; and Kopelman, Arthur E.: "The Photodynamic Action of Bilirubin on Erythrocytes," *Journal of Pediatrics*, 81:473-483, September, 1972.

Previous research in the area is described, and studies by the authors are presented. "Erythrocyte suspensions exposed to bilirubin in concentrations that frequently occur during neonatal life are hemolyzed when irradiated with fluorescent light. The hemolysis is preceded by membrane damage that is reflected by a loss of erythrocyte potassium and a reduction in membrane ATPase activity. The initiation of the cation loss requires the simultaneous presence of molecular oxygen and light and therefore involves a photodynamic action of bilirubin. The development of anemia associated with phototherapy may be a consequence of an in vivo photosensitized hemolysis." Caution in the use of phototherapy for hyperbilirubinemia in the newborn is suggested.

266. O'Gureck, Joan E.; Roux, Jacques F.; and Neuman, Michael R.: "Neonatal Depression and Fetal Heart Rate Patterns During Labor," *Obstetrics and Gynecology*, 40:347-355, September, 1972.

In order "to examine, for clarification, earlier conclusions reached on fetal monitoring and to provide the obstetrician and perinatologist with some guidelines for interpreting data on fetal heart rate when it is recorded simultaneously with intrauterine pressure," 84 women in labor were continuously monitored for intrauterine pressure and fetal heart rate (FHR), and determinations of fetal scalp pH and cord venous blood were conducted on 41 of these patients. All methods are described. Maternal complications were present in 72 percent of these women, and fetal and neonatal complications are listed. Results are presented with regard to how both the general changes seen in FHR during labor and the specific FHR patterns seen were related to infant complications; "the significance of FHR as labor progresses"; the relationship of FHR changes, tachycardia, and Apgar scores; and the relationship of the biphasic deceleration pattern and infant condition. Results are discussed.

267. O'Gureck, Joan E.; Roux, Jacques F.; and Neuman, Michael R.: "A Practical Classification of Fetal Heart Rate Patterns," *Obstetrics and Gynecology*, 40:356-361, September, 1972.

Problems involved in the classification of fetal heart rate patterns are described as are various methods of classification which have been used. The need for a single, uniform classification in order to interpret the condition of the fetus accurately is stated. Such an outline for classifying and interpreting fetal heart rate patterns is then presented in detail.

268. Oh, William, and Karecki, Hanne: "Phototherapy and Insensible Water Loss in the Newborn Infant," *American Journal of Diseases of Children*, 124:230-232, August, 1972.

Insensible water loss (IWL) was studied in 36 full term neonates, of whom 12 were hyperbilirubinemic and were receiving phototherapy, 14 were normal and were not receiving phototherapy, and ten were jaundiced but were receiving no phototherapy. Methods used and the formula used to calculate the IWL are presented. It was found that in the infants receiving phototherapy, "the respiratory rate, stool water loss, and insensible water loss were significantly greater than the control and jaundiced infants who did not receive phototherapy." "These results emphasize the importance of careful calculation of water intake to maintain positive water balance in infants receiving this form of therapy." The fact that these results may have a different implication for low birth weight infants than for full term infants and possible causal factors for the increase in IWL are discussed.

269. Ohlrich, Elizabeth S., and Barnet, Ann B.: "Auditory Evoked Responses During the First Year of Life," *Electroencephalography and Clinical Neurophysiology*, 32: 161-169, February, 1972.

The study described in this article was conducted for the purpose of determining the changes that occur in auditory evoked responses (AERs) during the first year of life. One reason for interest in the subject is "the fact that evoked responses are being increasingly used in the diagnosis of sensory and neurologic abnormalities, especially in the young child." Three groups of 15 infants were studied. In the first group (one-month group) the infants were from birth to 30 days of age, in the second group (six-month group) they were from five to seven months of age, and in the third group (12-month group) they were from 11 to 13 months of age. "The average AER to a series of 100 clicks presented at 65 dB hearing level (HL) was computed." Methods of producing and receiving the clicks, recording the EEG, etc. are described, and the results of measuring the various components are presented. Several changes in the components were noted between ages 1, 6, and 12 months. Results are discussed and related to other pertinent studies.

270. O'Leary, James A., ard Bezjian, Alex A.: "Amniotic Fluid Fetal Maturity Score," *Obstetrics and Gynecology*, 38:375-378, September, 1971.

The importance of accurately estimating fetal maturity is discussed. Results from determining amniotic fluid creatinine, bilirubin, Nile blue sulfate cell count, estimated fetal weight, and x-ray evidence of distal femoral epiphysis were used to devise a fetal maturity score in 233 patients upon whom 268 amniocenteses were performed. Results indicate that "by combining five reliable and accessible methods in a form of a score, it has been possible to decrease the margin of error in determining fetal maturity, even though a large number of observers took part in the study."

271. Olson, Jane E., and Stravino, Vincent D.: "A Review of Cryotherapy," *Physical Therapy*, 52:840-853, August, 1972.

"The physiologic effects of cold on the body," including the "effect on acute trauma" and the "effect on pain, muscle spasm, and spasticity" are reviewed. This is followed by an examination of the "clinical applications of cryotherapy" in various musculoskeletal conditions, in rheumatoid arthritis, and in neurologic conditions such as cerebral palsy. "Considerations and precautions in the use" of such therapy are discussed. Many studies are mentioned throughout the article.

272. Ong, H.C., and Sen, D.K.: "Clinical Estimation of Fetal Weight," *American Journal of Obstetrics and Gynecology*, 112:877-880, April 1, 1972.

The importance of correctly estimating fetal weight is discussed. In order to determine the reliability of estimating fetal weight clinically, 1,001 estimations were made within one week of delivery on 50.6 patients in Malaysia. These estimations were then compared to actual weight at birth. Methods are described. Results indicate that "clinical estimation remains not only the most practical but also about the same in terms of accuracy as any other means of assessment of fetal size in utero." However, there was a definite trend in this study to overestimate fetal weight in the lower weight range and to underestimate fetal weight in the upper weight range. Because the importance of accurate assessment at these two weight extremes is often critical, "care must be taken in accepting estimates of fetal weight at the extremes of the scales."

273. Osband, Michael E., and Tobin, James R.: "Lead Paint Exposure in Migrant Labor Camps," *Pediatrics*, 49:604-606, April, 1972.

When the housing facilities of 117 migrant labor camps in Wayne County, New York were checked for the presence of lead-based paint, 98.3 percent of the camps "had lead-based paint on their structures." "The average dwelling had 50% of its surfaces painted with lead-based paints." The commonly poor supervision of children in such camps is noted.

274. Ostergard, Donald R., and Kushinsky, Stanley: "Urinary Estriol as an Indicator of Fetal Well-Being," *Obstetrics and Gynecology*, 38:74-78, July, 1971.

Urinary estriol levels were determined as described in 139 women having normal and complicated pregnancies. Results are presented for the normal patients (35), the patients having preeclampsia and eclampsia (44), those having chronic hypertension (9), those with gestational diabetes (22), those with diabetes mellitus (12), those with placenta previa and abruptio placentae (10) and those who delivered either twins or triplets (7). "Normal or high levels of urinary estriol indicate that the fetus is in no immediate danger of intrauterine death. However, low levels are of controversial value as an indicator of fetal compromise. Thus, the major use of urinary estriol determinations is associated with a normal or high level of estriol excretion which, regardless of diagnostic category, permits the pregnancy to be continued, and prevents iatrogenic and unnecessary premature delivery."

275. Ostwald, Peter: "The Sounds of Infancy," *Developmental Medicine and Child Neurology*, 14:350-361, June, 1972.

In this article interest in the study of infant vocalization is historically reviewed briefly, and current and future happenings in this field are surveyed. Discussed in particular are the methods and equipment used in analyzing the cry of infants and the potential diagnostic and prognostic value of the analysis of the infant cry. A lengthy bibliography on the subject follows.

276. Page, Ernest W.: "Pathogenesis and Prophylaxis of Low Birth Weights," *Clinical Obstetrics and Gynecology*, 13:79-86, March, 1970.

The method of classifying newborns into five groups by both birth weight and gestational age as proposed by Yerushalmy is explained, and an attempt is made "to analyze the possible pathogenesis and potential prophylaxis for each grouping of newborn infants." The "significance of some factors associated with low birth weights" is discussed in relation to a described study of 115,892 consecutive deliveries. With regard to the prophylaxis of low birth weight, 'ten commandments' are listed for the obstetrician to follow with his patients in order that the frequency of prematurity and fetal growth retardation might be reduced.

277. Page, John M.: "A Diagnostic Multi-Disciplinary Approach to Handicapped Children," *Pennsylvania Medicine*, 75:3:89-90, March, 1972.

Such an approach is used in the Department of Pediatrics at the Medical College of Pennsylvania and is described in this article. This team approach is called Special Diagnostic Services (SDS) and "has as its main function the rendering of identification and diagnostic services to those children (and their families) with particular dysfunctions or handicaps." The team is composed of a pediatrician, a child psychoanalyst, a psychologist, an audiologist/speech pathologist, and a social worker. The role of each of these members is described. Each referred child is evaluated and then discussed in team conferences. Diagnosis and recommendations are then made, and suitable programs are initiated. The age range of the children seen is from infancy through adolescence. The team is also used as an important source for training of student and resident medical personnel.

278. Parkman, Robertson: "The Relationship of Gender to Hemolytic Disease of the Newborn Infant," *Journal of Pediatrics*, 80:469-471, March, 1972.

In a review of described cases at Yale-New Haven Hospital it was discovered that "in ABO blood group incompatibility, significantly more female infants have a positive direct Coombs test, are affected with significant hemolytic disease of the newborn infant, and require exchange transfusion"; whereas, "in D incompatibility, more male infants require exchange transfusions." Possible reasons for these findings are discussed.

279. Partington, M.W.; Campbell, D.; Kuyek, J.; and Mehlomakulu, M.: "Motor Activity in Early Life. III. Premature Babies With Neonatal Tyrosinaemia; a Pilot Study," *Biology of the Neonate*, 18:121-128, 1971. (Series: For I see #280, II see #67.)

The condition of neonatal tyrosinaemia is described. Motor activity of eight premature infants was studied as described two times per week for periods up to three hours during the infants' hospital stay. "There were no marked changes in the frequency of movements related to either postconceptional or postnatal age. In the more premature babies with marked neonatal tyrosinaemia, the frequency of movements was reduced when the plasma-tyrosine level was highest."

280. Partington, M.W.; Lang, E.; and Campbell, D.: "Motor Activity in Early Life. I. Fries' Congenital Activity Types," *Biology of the Neonate*, 18:94-107, 1971. (Series: For II see #67, III see #279.)

Motor activity was studied in 107 normal neonates by assessing the infants on seven described measures of motor activity which resembled those measures previously described by Fries. "These measures were combined into an overall score of motor activity - the Fries score." No significant relationships between this Fries score and several perinatal factors could be found except for the Apgar score. "The 8 babies with an Apgar score of under 7 had a slightly higher Fries score than the rest of the group." The motor activity of 50 of these infants was studied when the infants were one year of age by means of observation and a questionnaire. No significant correlation could be determined between the newborn Fries score and measures of motor behavior at one year of age.

281. Paul, Richard H.: "Clinical Fetal Monitoring; Experience on a Large Clinical Service," *American Journal of Obstetrics and Gynecology*, 113:573-577, July 1, 1972.

Reported is the experience of intrapartum monitoring of high-risk obstetric patients at the Los Angeles County/University of Southern California Medical Center (LAC/USC). The usage of monitoring the materials used, the indications for monitoring, the incidence of cesarean section delivery among the monitored patients, and the perinatal results of those monitored are presented.

282. Pearson, Paul H., and Williams, Carol Ethun, eds.: *Physical Therapy Services in the Developmental Disabilities*. Springfield, Ill.: C.C. Thomas, 1972. 460 pp.

This volume contains ten chapters presented in three sections. Section One consists of two contributions in the area of "Management." In Section Two, "The Therapies," there are articles on the "Diagnosis and Assessment of Cerebral Palsy," the Bobath or neurodevelopmental approach to treatment, the Rood or sensorimotor approach, and the Kabar or proprioceptive neuromuscular facilitation approach. Other papers in Section Two are concerned with "Facilitating Feeding and Prespeech," "The Use of Movement Activities in the Education of Retarded Children," and "Improving the Physical Fitness of Retardates." The two chapters in Section Three are concerned with "Programs" in physical therapy for children. Bibliographies follow each chapter.

283. Pedersen, Ejner: *Spasticity; Mechanism, Measurement, Management*. Springfield, Ill.: C.C. Thomas, 1969. 130 pp.

In this volume, consisting of four chapters, the author examines the anatomical and physiological aspects of the stretch reflex, the clinical aspects, the methods of measuring spasticity, and a number of the techniques employed in the management of spasticity. Treatment methods are considered under the divisions of pharmacotherapy, physical therapy, chemical destruction, and surgical treatment. A 25-page list of references is included.

284. "Perinatal Medicine; Advances in a Hybrid Speciality Lower Neonatal Mortality, Morbidity," *Medical World News*, 13:29:44-47, 50-51, August 4, 1972.

The field of perinatal medicine is described, and the statistics dealing with neonatal mortality and morbidity are reviewed with emphasis placed on the positive effect toward reducing these figures that the increased interest in perinatal medicine has had. Particular areas of interest and accomplishments in perinatal medicine are then discussed. These include prematurity and its risks, respiratory distress syndrome and the treatment advance of "continuous positive airway pressure (CPAP)," the "immediate postpartum examination of the esophagus and upper gastrointestinal tract for diagnosis of hemorrhage" developed by Dr. Erich Saling, the controversy over use of anesthesia in childbirth, the thermoregulatory function in the newborn, the feeding of premature newborns, and the need for and value of neonatal intensive care departments.

285. Perrin, Jane C.S.; Rusch, Edna L.; Pray, Janet L.; Wright, Gregg F.; and Bartlett, Glen S.: "Evaluation of a Ten-Year Experience in a Comprehensive Care Program for Handicapped Children," *Pediatrics*, 50:793-800, November, 1972.

A statistical study was conducted in the Comprehensive Care Program for physically and mentally handicapped children at Cleveland Metropolitan General Hospital to determine if a relationship existed between the functioning of the patient and his family as scored and the professional input time given to the patient and his family. A randomly selected ten percent (75) of the patients in the Program were studied. Results indicated "there was no significant zero-order correlation between our measurement of physician and social worker quantitative input and improvement of patient or family function." These findings are discussed, and two major groups of factors are listed to which the lack of correlation was attributed. Appendices contain lists of "parent function variables" and "family function variables" and the statistical methods used.

286. Peterson, Edward N.; Hutchinson, Donald L.; Sabbagha, Rudy E.; Royal, Judith S.; and Levitt, Monte J.: "Sonography and Amniocentesis as Predictors of Gestational Age and Fetal Growth in the Rhesus Monkey," *American Journal of Obstetrics and Gynecology*, 114:883-889, December 1, 1972.

Eight pregnant rhesus monkeys of known gestational duration were studied with regard to the fetal biparietal diameter determined by B-scan ultrasound and the lecithin and sphingomyelin concentrations in amniotic fluid. Two of these monkeys had been made glucose-intolerant. All methods and results are described. Findings concerning the ultrasonic measurements indicated "a plateau in skull growth after 120 days' gestation." "Peak levels of lecithin appeared in amniotic fluid at 148 days of pregnancy, with a lecithin:sphingomyelin ratio of 2.3:1, partly because of decreased sphingomyelin." The two glucose-intolerant monkeys "showed decreased phospholipid values in amniotic fluid and a mean licithin:sphingomyelin ratio of 1.2:1 at 142 days' gestation." It is suggested that employment of these two methods "in the pregnant rhesus monkey could serve as useful techniques to study fetal effects of altered maternal nutrition and placental dysfunction."

287. Pierog, Sophie H., and Ferrara, Angelo: *Approach to the Medical Care of the Sick Newborn*. St. Louis: C.V. Mosby, 1971. 292 pp.

Designed to present "practical guidelines to the physician and the staff caring for the daily needs of the newborns," this volume deals with the infant-at-risk and his care. Material is presented in two parts. Part I is much the shorter and is concerned in three chapters with the "Organization and Dynamics of Newborn Services." Part II is comprised of six sections which are further subdivided into 26 chapters and is concerned with the "Care of the Newborn-at-Risk." Discussed in Section One are the factors in the perinatal period which influence "the management of the infant-at-risk." "Newborn Care" is the subject of Section Two, and in Section Three some of the abnormal symptoms found in the neonatal period are individually examined. "Specific Conditions of Infants-at-Risk" are discussed in the seven chapters of Section Four, therapeutic measures are described in Section Five, and the topic of Section Six is "The Neonate's Needs: Family and Community Response." Five appendices contain information on procedures, terms, drugs, formulas, and laboratory values. References follow each chapter.

288. Poole, A., and Ruck, P.: "Remedial Play Groups for the Under-Fives in a General Hospital," *Physiotherapy*, 58:132-134, April, 1972.

The organization, composition, and aims of out-patient play groups for children under the age of-five years at a general hospital are explained. The types of children referred to the play groups include retarded children as defined, those with behavioral problems, and cerebral palsied. The three established play groups and a typical child from each group are described. Group A "is for the younger, less mobile child with a picture of slow development in all spheres." Group B "is for children of an older age-range who are fully mobile but have balance problems and specific difficulties, such as poor hand/eye co-ordination, poor concentration, or behaviour problems." Group C "is for cerebral-palsied children generally with major physical handicaps and minimal mental retardation."

289. "Prevention of Rh-Haemolytic Disease: Final Results of the 'High-Risk' Clinical Trial; A Combined Study From Centres in England and Baltimore," *British Medical Journal*, 2:607-609, June 12, 1971.

Reported are the final results of a longitudinal study in which 173 Rh-negative primipara were given anti-D gammaglobulin as described after delivery of ABO-compatible Rh-positive babies. A control group consisted of 176 untreated mothers. "Six months after delivery only 1 out of 173 treated mothers had been immunized as against 38 out of 176 controls." Of the 86 treated mothers who had subsequent second Rh-positive pregnancies, two had antibodies while this was true in 20 out of the 65 control mothers who had such subsequent pregnancies. Results are discussed. "The results show a high degree of protection in this group of mothers."

290. Pridmore, B.R.; Robertson, E.G.; and Walker, W.: "Liquor Bilirubin Levels and False Prediction of Severity in Rhesus Haemolytic Disease," *British Medical Journal*, 3:136-139, July 15, 1972.

When amniocenteses were performed on 716 rhesus-sensitized pregnant women incorrect predictions with regard to liquor bilirubin levels occurred in 80 of these women. In 56 cases an "overprediction" was made, and in 24 cases an "under prediction" was made. Results are presented for both of these groups of women. In the "underprediction" group there was a perinatal mortality rate of 52.1 percent. Trauma to the placenta from the amniocentesis seemed to be the cause of "an increase in the severity of immunization in a significant proportion of cases." The neonatal mortality rate in the "overprotection" group was 12.5 percent with the major cause of death in six of the seven cases considered to be prematurity. Suggestions for improving the accuracy of prediction and decreasing the risks of amniocentesis are made.

291. Priestley, Betty L.: "Neurological Assessment of Infants of Diabetic Mothers in the First Week of Life," *Pediatrics*, 50:578-583, October, 1972.

The study presented in this article was conducted in three parts. In order to first establish the reliability of the examination procedure to be used, a group of infants of nondiabetic mothers, weighing 2,500 gm. or less at birth, were neurologically assessed as described for the purpose of determining gestational age. In 36 infants the gestational age determined by the neurological examination was then compared to the gestational age known by dates, and the reliability of the method was confirmed. In Part 2 of the study the examination was conducted on 55 infants of diabetic mothers (IDMs) to assess the neurological development. Again the development established by the examination was shown to be consistent with the known gestational age of the infants. The examination revealed that "many of the IDMs showed neurological abnormalities resulting from hypotonia, which in turn correlated well with previous hypoglycemia." Hypotonia occurred in 60 percent of the infants. In Part 3 of the study the 14 items comprising the examination were separately evaluated for reliability and results are presented.

292. Pueschel, Siegfried M.; Kopito, Louis; and Schwachman, Harry: "Children With an Increased Lead Burden; A Screening and Follow-Up Study," *Journal of the American Medical Association*, 222:462-466, October 23, 1972.

The parents of 705 preschool children in an impoverished Boston area were interviewed with regard to lead exposure and possible symptoms of lead poisoning in their children. The hair of all children was analyzed for lead content in a single, described screening test. When indicated, further tests were conducted. Of the 705 children screened, 98 "were found to have an increased lead burden." Treatment methods are described. Of these 98 children, 58 were comprehensively studied and followed with results presented. During the study period efforts were made to improve the health environment of the children. "Minor neurological dysfunction and various forms of motor impairment were observed in 22% to 27% of the children during each evaluation. Initial psychological assessment revealed low average mental abilities in the majority of children and 1 1/2 years later a significant increase in certain areas of intellectual functioning was noted." These and other results are discussed as is the screening technique used in this study. Its advantages and limitations are mentioned.

293. Queenan, John T.; Thompson, W.; Whitfield, C.R.; and Shah, Saroj I.: "Amniotic Fluid Volumes in Normal Pregnancies," *American Journal of Obstetrics and Gynecology*, 114:34-38, September 1, 1972.

With methods explained, 187 amniotic fluid volume determinations were conducted on 115 patients between 15 and 42 weeks of gestation in order to "determine the range of amniotic fluid volumes during normal pregnancies." A wide range in volumes was determined with this range increasing as pregnancy continues. These results are plotted on a graph against the weeks of gestation. Mean volume values were determined for each two-week period beginning at week 15. The use of amniotic fluid determinations in prenatal assessment and diagnosis is discussed.

294. Quilligan, Edward J.: "The Obstetric Intensive Care Unit," *Hospital Practice*, 7:61-69, June, 1972.

Two case histories are presented to demonstrate "the need for, and advantages of" such a unit. The three phases of obstetric intensive care offered at the University of Southern California are described. These are 1) the out-patient clinic which is called the Obstetric High Risk Clinic, 2) the antepartum intensive care unit, and 3) the intrapartum or labor intensive care unit. One of the four delivery rooms is a research delivery room containing "sophisticated electronic, ultrasonic, and computer hardware" and is used for research and very difficult cases. Training and integration of personnel in the unit is explained. Next, the procedures available at this ICU are described in detail. Included are procedures used to continuously monitor the fetal heart rate and uterine contractions and the various patterns discovered from such monitoring, the maneuvers that are possible to employ in cases where the situation is deteriorating in order to prevent brain damage, laboratory procedures used such as the serial measurement of urinary estriol, the inducement of a trial labor using oxytocin to see if the fetus can withstand the oxygen stress, and the analysis of acid-base status of the fetal blood by periodic scalp puncture. "That the approach may be appropriate for *all* deliveries is suggested by the finding that perinatal mortality among monitored, high-risk patients is in fact slightly *lower* than among unmonitored, essentially normal (i.e., low-risk) women."

295. Ray, Michael; Freeman, Roger; Pine, Stephen; and Hesselgesser, Robert: "Clinical Experience With the Oxytocin Challenge Test," *American Journal of Obstetrics and Gynecology*, 113:1-9, September 1, 1972.

Oxytocin was administered as described to a group of antepartum patients considered to be "at high risk for placental insufficiency" in order to determine the significance of a positive oxytocin challenge test in relation to fetal well-being and noenatal condition. "The criteria for a positive test are: (1) uniform deceleration of the fetal heart rate which (2) reflects the wave-form of the uterine contraction with (3) onset at or beyond the acme of a contraction and (4) similar fetal heart rate changes following subsequent contractions." Those fetuses having negative tests (65 tests on 43 patients) were found to do well, in general. Twenty-one positive tests occurred on 15 patients, and such a result "was significant in that it confirmed the clinical impression that the fetus was existing in a markedly unfavorable environment, heralded a fall in maternal estriol excretion and, in 3 instances, signified impending intrauterine death." The oxytocin challenge test is seen as a method for use in the evaluation of the 'respiratory' function of the placenta. Its value is discussed.

296. Reid, David W.J.; Campbell, Donald J.; and Yakymyshyn, Luella Y.: "Amino Acid Variations in Amniotic Fluid and Maternal Plasma From Rh-Sensitized Pregnancies. Part II.," *American Journal of Obstetrics and Gynecology*, 114:1035-1040, December 15, 1972. (Series: For I see #297.)

Amniotic fluid and maternal plasma samples were collected, from which 21 amino acids were analyzed as described between weeks 34 to 40 of gestation in 24 Rh-sensitized women. "The results of the 24 patients were divided into 3 groups: Group 1, requiring no replacement transfusion of the infant; Group II, requiring multiple replacement transfusions of the infant; and Group III, in whom fetal death occurred either in utero or shortly after birth." The results were compared with those from 16 normal term pregnancies. While the amino acid levels in Groups I and II were found to be quite similar to those found in the normal pregnancies with most amino acids in the amniotic fluid generally being lower than those in maternal plasma, the levels in Group III patients were found to differ significantly. "In particular, it was noted that proline levels were markedly elevated in the amniotic fluid of patients in whom fetal death occurred ($p < 0.001$). From this preliminary work arises the interesting possibility that an increased amniotic fluid versus maternal plasma proline level may be of diagnostic assistance in severe Rh disease." The need for further investigation is noted.

297. Reid, David W.J.; Campbell, Donald J.; and Yakymyshyn, Luella Y.: "Quantitative Amino Acids in Amniotic Fluid and Maternal Plasma in Early and Late Pregnancy; Preliminary Report," *American Journal of Obstetrics and Gynecology*, 111:251-258, September 15, 1971. (Series: For II see #296.)

The value of determining amino acid levels in amniotic fluid with respect to detecting abnormal fetal conditions is discussed. In an attempt to establish normal amino acid levels in the amniotic fluid and plasma at two periods of gestation (7 to 18 weeks and 36 to 40 weeks), 21 amino acids in the amniotic fluid and plasma were studied in 27 normal pregnant patients at the two gestational periods designated. Values were also obtained for 16 nonpregnant control women. Much data are presented. "Significant differences were found for levels of plasma amino acids in both the 7 to 18 week and 36 to 40 week gestational groups as compared to the nonpregnant group. The free amino acid levels of amniotic fluid did not reflect maternal plasma levels. At 7 to 18 weeks, 10 amino acids were significantly higher in amniotic fluid than maternal plasma, while at term the reverse was found, 15 amino acids being lower in amniotic fluid than maternal plasma. Sixteen amniotic fluid amino acids were significantly lower at 36 to 40 weeks than 7 to 18 weeks, whereas no significant differences were found for most of the plasma amino acids of the 2 groups." These findings are discussed.

298. Reid, Duncan E.: "The Right and the Responsibility," *American Journal of Obstetrics and Gynecology*, 108:825-832, November 1, 1970.

Figures concerning neonatal mortality and morbidity are reported and discussed with mention made of the contribution of socioeconomic factors. Then described are the material, results, and conclusions of a continuing collaborative study of some 65,000 pregnancies which "was designed to reveal quantitative risk of mental deficiency and neurological disorder in children from pregnancies complicated by a variety of medical diseases and unfavorable obstetrical conditions now commonly referred to as 'high-risk' pregnancy." Results relating to various of these contributing elements, including acute and chronic hypoxia, uterine bleeding, and infection, are reported. The need for an interdisciplinary approach to the problem is emphasized.

299. Reid, Mark McC.; McClure, Garth; Marks, E.; and Elwood, J.H.: "Phototherapy in Rhesus Haemolytic Disease," *Lancet*, 1:879-881, April 22, 1972.

Phototherapy was administered as described for four days to 45 infants with rhesus hemolytic disease while a control group of 78 infants received no phototherapy. Management methods were similar for both groups. The group receiving phototherapy required 50 exchange transfusions, and the control group required 132 exchange transfusions. This difference was statistically significant. One infant died in the phototherapy group, and two infants died in the control group. These three cases are briefly described. No adverse effects from the phototherapy were noted. "It is suggested that phototherapy can reduce the requirements for exchange transfusion in rhesus haemolytic disease."

300. Reimers, Jorgen: "A Scoring System for the Evaluation of Ambulation in Cerebral Palsied Patients," *Developmental Medicine and Child Neurology*, 14:332-335, June, 1972.

Such a scoring system, based on "demerit points" given for the amount of disability a patient has in sitting, standing, and walking, the amount of support needed, etc., is presented. It is believed to be an objective method of recording pre- and post-operative and pre- and post-treatment abilities in cerebral palsied patients.

301. Reye, Corrie: "Changing Patterns in Treatment of Cerebral Palsy," *Medical Journal of Australia*, 58:2:1187-1188, December 4, 1971.

Various early and more recent definitions of cerebral palsy are presented, possible associated defects of cerebral palsy are listed, and the principles and implementation of a neurodevelopmental approach to treatment are explained. Also briefly considered are the general management of cerebral palsied children, feeding problems and therapy, and orthopedic surgical procedures that are frequently needed by cerebral palsied children. "Strong emphasis is placed on the importance of early diagnosis and treatment."

302. Rigatto, Henrique, and Brady, June P.: "Periodic Breathing and Apnea in Preterm Infants. I. Evidence for Hypoventilation Possibly Due to Central Respiratory Depression," *Pediatrics*, 50:202-218, August, 1972. (Series: For II see #303.)

In a study, "designed to discover whether preterm infants breathing periodically hypoventilate or hyperventilate and whether the major defect is at the central or peripheral chemoreceptor level," 84 studies were conducted on 20 'healthy' preterm newborns during the first 34 days of life. The term, periodic breathing, is defined; clinical data are presented for the 20 subjects; and physiological measurements are presented for the group of infants breathing periodically, for those breathing regularly, and for the intermediate group. With methods pictured and described, these three groups were compared with regard to "respiratory minute volume and frequency, heart rate, alveolar oxygen tension (P_{AO_2}) and alveolar carbon dioxide tension (P_{ACO_2}) and Po_2, Pco_2 and pH of arterialized capillary blood, alveolar-capillary differences for Po_2 and Pco_2, peripheral chemoreceptor sensitivity and CO_2 responses." Limitations of the method used are explained, results are described and discussed, and speculations and conclusions are stated. "The mean values for the intermediate and periodic groups were similar. There were major differences between the periodic and regular groups. The infants breathing periodically (1) hypoventilated, (2) showed a significant shift of the CO_2 response curve to the right with a 22% decrease in slope, and (3) had an increased response to O_2. However, the two groups had similar alveolar-capillary Po_2 and Pco_2 differences. These findings suggest that the major defect is not in the lungs or at the peripheral chemoreceptors but at the respiratory center (or central receptors)." An appendix is included in which statistical methods are explained.

303. Rigatto, Henrique, and Brady, June P.: "Periodic Breathing and Apnea in Preterm Infants. II. Hypoxia as a Primary Event," *Pediatrics*, 50:219-228, August, 1972. (Series: For I see #302.)

In order to determine the relationship between periodic breathing, apnea, and hypoxia, nine healthy preterm neonates were studied, each on four or five occasions, during the first 35 days of life. "Ventilation/apnea (V/A), minute ventilation, and alveolar and capillary blood gases" were compared "during periodic breathing induced by hypoxia" as described and "during spontaneous periodic breathing in room air." Clinical data on the infants, methods of study, the procedure used, data analysis methods, the limitations of the methods, the results and their implications, and the speculations and conclusions based on the findings are each individually presented. The findings indicated "that progressive hypoxia produced a decrease in V/A, due primarily to a progressive increase in the apneic interval." "These findings suggest that hypoxia may be a primary event leading to hypoventilation, periodic breathing and apnea in preterm infants." An appendix containing statistical calculations is included.

304. Rizzardini, Mafalda, and Abeliuk, Paulina: "Tyrosinemia and Tyrosinuria in Low-Birth-Weight Infants," *American Journal of Diseases of Children*, 121:182-185, February, 1971.

Thirty-one infants of low birth weight and of a definite, assessed gestational age were studied with respect to their plasma and urinary tyrosine levels. Results demonstrated that regardless of birth weight, "both plasma and urinary tyrosine levels were markedly increased in infants whose gestational age was below 38 weeks." On the basis of the data it is concluded that this is "a practical biochemical method for assessing gestational age in low-birth-weight infants."

305. Roosth, H.P.: "Flexion Deformity of the Hip and Knee in Spastic Cerebral Palsy: Treatment by Early Release of Spastic Hip-Flexor Muscles," *Journal of Bone and Joint Surgery*, 53A:1489-1510, December, 1971.

"This article presents evidence to support the thesis that the bi-articular tensor fasciae latae, rectus femoris, and sartorius muscles, as well as the monarticular anterior fibers of the gluteus medius and gluteus minimus, are the muscles responsible for" the hip-flexion deformity, "and that surgical release of these hip flexors at an early age will eliminate the crouch posture and improve gait." The clinical signs of hip-flexion contracture and knee-flexion deformity are given, tests used to demonstrate hip-flexion contracture are explained, and the surgical procedure used by the author for the release of hip-flexion deformity in 37 cases is described. These patients and the results obtained from the surgery are presented in detail with many pictures included. "The short-term results in this small series (length of follow-up, one to four years) indicate that release of the aforementioned muscles early in life (near the age of three years) results in the development of more normal posture, a better gait, and correction of the internal rotation deformity of the hip."

306. Rosado, A.; Bernal, A.; Sosa, A.; Morales, M.; Urrusti, J.; Yoshida, P.; Frenk, S.; Velasco, L.; Yoshida, T.; and Metcoff, J.: "Human Fetal Growth Retardation. III. Protein, DNA, RNA, Adenine Nucleotides and Activities of the Enzymes Pyruvic and Adenylate Kinase in Placenta," *Pediatrics*, 50:568-577, October, 1972. (Series: For I see #396, II see #429.)

Placentas were analyzed as described from 35 small for gestational age infants with intrauterine growth retardation (IUM), 28 premature but appropriate for gestational age infants (AGA), and 17 full term infants (FT). Results are presented comparing the three study groups with regard to placental weight and the placental factors listed in the title of the article. The resultant data are interpreted and discussed under the categories of "placental dimensions," "placental composition," and "placental metabolism." "The lack of relevant differences in the metabolic parameters presented in this study between FT and

IUM placenta suggest that either the metabolic imbalance is not reflected in placental tissue; or that some biochemical changes in placenta, other than those investigated in the present study, are more directly connected with intrauterine malnutrition; or that the placenta only functions as a supportive and transport organ by the time the fetus is delivered, hence does not reflect either the prior growth process of the fetus nor the metabolic state of the mother." These results are contrasted with those presented in Part II of the series.

307. Rosenthal, Robert K.; McDowell, Fletcher H.; and Cooper, William: "Levodopa Therapy in Athetoid Cerebral Palsy; A Preliminary Report," *Neurology*, 22:1-11, January, 1972.

Nine teenage and adult athetoid cerebral palsy patients of average IQ were selected to receive levodopa therapy as described. All patients were thoroughly evaluated prior to initiation of treatment "to determine base-line performance," and all patients were tested and evaluated periodically during the treatment period. Results of these evaluations are presented in the areas of handwriting, motor function, posture, daily living activities, speech, pain, tremor, drooling, grimacing, swallowing, the feelings of the patient, his mood, the course of treatment, and side effects. "Eight of the nine patients showed varying degrees of improvement. One patient did not improve. Double-blind placebo trials confirmed the improvements obtained with levodopa." "Even though no patient totally lost his athetosis, improvement in the many areas tested affected the overall function of each patient and significantly reduced symptoms. This improvement is being sustained on continued treatment."

308. Rosman, N. Paul; Malone, Michael J.; Helfenstein, Myrna; and Kraft, Edith: "The Effect of Thyroid Deficiency on Myelination of Brain," *Neurology*, 22:99-106, January, 1972.

In order to study the effects of neonatal hypothyroidism on the development of the brain, pregnant Sprague-Dawley white rats were placed on iodine-free diets and were given distilled water. Soon after birth one-half of the offspring of each litter were "radiothyroidectomized by intraperitoneal injection of 100 μc. of 131 I." All animals were weighed every other day, and two animals from both the experimental and control groups were sacrificed each day. Results are presented with respect to body and brain growth, thyroid and nervous system histological studies, and biochemical studies. The induced neonatal hypothyroidism produced "a cessation of body growth after 24 days" and smaller brains than those of the controls, "especially after 14 days." "This difference increased with age, but at all ages the difference in brain weights was less marked than the disparity in body weights." A delay in myelination of the brain was also evident by both histological and biochemical criteria. "These morphological results correlated well with the chemical findings of reduced proteolipid and lipid hexose in brain. Reduction was more marked in the lipid hexose values."

309. Rosta, J., and Békefi, D.: "A New Chart for Indicating Exchange Transfusion in Neonatal Hyperbilirubinaemia," *Acta Paediatrica Academiae Scientiarum Hungaricae*, 12:311-316, 1971.

Such a chart is presented and explained. "Three separate lines showing the border limits of serum bilirubin values make it possible to consider individually in each case the maturity of the infant, expressed as body weight or gestational age, clinical and serological data and, if serial estimations have been performed, the dynamics of bilirubin metabolism."

310. Rosta, J.; Makói, Zita; Békefi, D.; Popper, P.; Szinetár, Susan; Szego, Livia; Szabó, Margit; Szendroi, Mária; and Ribári, O.: "Neonatal Pathologic Jaundice," *Acta Paediatrica Academiae Scientiarum Hungaricae*, 12:317-321, 1971.

Thoroughly re-evaluated as described seven to ten years later were "children born with a weight of 2500 g or more and displaying a serum bilirubin level surpassing 15 mg/100 ml, with or without an immune-haemolytic background." Results are presented with regard to general, neurological, electroencephalographical, audiometric, and psychological findings. The patients were placed in three groups on the basis of the severity of their jaundice as described: "(I) peak serum bilirubin level below the limit when an exchange transfusion comes into consideration; (II) peak serum bilirubin level exceeding the above criteria but not representing an absolute indication for exchange transfusion; (III) peak serum bilirubin level above the limit absolutely indicating an exchange transfusion." Sequelae were found in 34, 37, and 55 percent of the patients in these three groups, respectively.

311. Rubaltelli, Firmino F.: "Serum Conjugated Bilirubin in Newborns of Mothers Treated With Immunosuppressive Drugs," *Acta Paediatrica Scandinavica*, 61:606-608, September, 1972.

When conjugated bilirubin levels were studied in ten full-term infants with erythroblastosis fetalis born to mothers to whom immunosuppressive drugs (ametopterin and 6-mercaptopurine) had been administered after the 20th week of gestation, the level of conjugated bilirubin was found to be lower in the neonates of the mothers so treated than in the neonates of the control mothers. This seems "to demonstrate that the foetal activation of bilirubin-UDP-glucuronyl transferase by unconjugated bilirubin may be partially inhibited by treating the mothers with immunosuppressive drugs."

312. Ruszczynska, Bozena; Sulestrowska, Halina; Jankowicz, Eleonora; and Szelozynska, Katarzyna: "Difficulties in the Assessment of Mental Development in Children With the Extrapyramidal Form of Infantile Cerebral Palsy," *Polish Medical Journal*, 11:208-212, 1972.

Such children have been found to be difficult to assess with regard to mental development because of their speech and motor activity problems. The authors have chosen the Wechsler method of assessment for use with these children, and their reasons are explained. Results of using the method on 16 described children are presented and discussed. Only two children could not be tested. "In

10 children it was possible to perform examinations using the whole scale, in 1 child only the verbal scale and in 3, only the non-verbal scale could be used." "The investigations reported show that it is possible to assess the mental development of these children approximately despite these handicaps. It seems, however, that testing of little children is useless."

313. Ryan, Gary T.; Ivy, Roy, Jr.; and Pearson, Jack W.: "Fetal Bleeding as a Major Hazard of Amniocentesis," *Obstetrics and Gynecology*, 40:702-707, November, 1972.

When 291 cases of amniocentesis were reviewed with regard to the occurrence of fetal bleeding, five such cases were detected. Three of these cases are presented. Methods to lessen the risks of such complications and the course of management when fetal bleeding does occur are described.

314. Sabbagha, Rudy E., and Turner, J. Howard: "Methodology of B-Scan Sonar Cephalometry With Electronic Calipers and Correlation With Fetal Birth Weight," *Obstetrics and Gynecology*, 40:74-81, July, 1972.

This presented study was conducted in order to determine the accuracy of this method and to assess the method's reliability in estimating fetal birth weight. Three scanning techniques currently being used and nonpersistent image scanning (NPIS) are each described. B-scan fetal cephalometry was used to determine fetal biparietal diameter (BPD), with use of nonpersistent image scanning and electronic calipers included in the procedure, on 31 patients the night before delivery by cesarean section. These results were then compared to caliper BPD measurements taken after birth. Methods are described. "The mean absolute difference from the 31 paired measurements was 1.0 mm." This and further described evidence indicates "that an extremely high degree of unanimity exists between these two biparietal diameter measuring methods." "The observed correlation between BPD and fetal birth weight is defined within 95% confidence limits." Results and use of sonography in estimating fetal maturity are discussed.

315. Saigal, Saroj; O'Neill, Allison; Surainder, Yeldandi; Chua, Le-Berg; and Usher, Robert: "Placental Transfusion and Hyperbilirubinemia in the Premature," *Pediatrics*, 49:406-419, March, 1972.

Placental transfusion was compared in 125 premature and 45 term noenates whose umbilical cords were clamped immediately, at one minute, or at five minutes after birth. Blood volume and hemocrit measurements were made for all the infants at about four hours of age. "Blood volume measurements showed that the 5-minute transfusion was similar in full-term and premature infants (47% and 50% increase in blood volume from birth). A larger proportion of the 5-minute transfusion occurred by 1 minute in full-term (76%) than in premature infants (56%)." Serum bilirubin levels were measured at approximately 72 hours of age. "Placental transfusion, by increasing red cell volume, greatly enhanced the severity of neonatal hyperbilirubinemia. Bilirubin concentrations of 15 mg/100 ml developed in only 6% of premature infants when cord clamping was immediate, in 14% when cord clamping was delayed 1 minute, and in 38% after a 5-minute delay in cord clamping." No correlation was found between the degree of prematurity and the severity of the hyperbilirubinemia. Implications are discussed.

316. Saint-Anne Dargassies, S.: "Neurodevelopmental Symptoms During the First Year of Life; Part I: Essential Landmarks for Each Key-Age," *Developmental Medicine and Child Neurology*, 14:235-246, April, 1972. (Series: For II see #317.)

"The major signs of normal development" and "the major signs of neurodevelopmental disorder" are listed and discussed for the newborn period, for the infant at age three months, for the infant from age four to six months, for the infant from age seven to nine months, and for the infant from age ten to 12 months. The evidence from two categories of signs must be evaluated in determining the current status of the child. The first of these categories is the developmental signs from which an infant can be given a developmental age to be compared with his chronological age. The second of these categories of signs are the "pathological, or more strictly neurological, signs implying impairment in many areas...from which the evolution of the impairments may be followed."

317. Saint-Anne Dargassies, S.: "Neurodevelopmental Symptoms During the First Year of Life; Part II: Practical Examples and the Application of This Assessment Method to the Abnormal Infant," *Developmental Medicine and Child Neurology*, 14:247-264, April, 1972. (Series: For I see #316.)

"The principle aim of this second chapter is to analyse the special approach needed for studying the abnormal infant, and to present a practical and simple method of recording observations." Individually discussed with illustrative cases are the three methods by which abnormal development should be detected. These three are: "1) The recognition of the negative aspects of the infant's developmental status. 2) The disassociation of the various areas of development, by studying them separately. 3) The rejection of retrospective methods of study in favour of longitudinal studies." Then presented is a method of clinical examination consisting of analytical screening charts for each key-age, on each of which is recorded the infant's "psycho-affective deviations," his "motor abnormalities" and the "evolution (of events)" in his case. Thus an "overall clinical picture" of the child can be perceived. Then from these charts, a diagram can be made "which recapitulates the child's development from birth." These charts and this diagram and the information they reveal are pictured and explained. "These two records will provide an evaluative profile which sums up the whole of the first two years and throws light on the next phase by indicating the more distant future."

318. Samilson, Robert L.; Tsou, Paul; Aamoth, Gordon; and Green, William M.: "Dislocation and Subluxation of the Hip in Cerebral Palsy; Pathogenesis, Natural History and Management," *Journal of Bone and Joint Surgery*, 54-A:863-873, June, 1972.

A total of 274 cerebral palsied patients out of 1,013 cerebral palsied patients at Sonoma State Hospital in California were found to have dislocated or subluxated hips. These 274 patients ranged in age from four months to 50 years, and the mean age at the time the dislocation occurred was seven years. These patients are discussed in this article with regard to their characteristics, the factors that predisposed them to dislocation, the indications for surgery in these cases, their non-operative and their operative management, and their postoperative complications.

319. Sandstead, Harold H.; Gillespie, David D.; and Brady, Robert N.: "Zinc Deficiency: Effect on Brain of the Suckling Rat," *Pediatric Research*, 6:119-125, February, 1972.

In order to study the possibility that zinc deficiency occurring in combination with protein deficiency "may compound the effect of protein and calorie deprivation by interfering with utilization of the meager dietary protein available," the suckling rats of dams fed since parturition on one of the following three diets were studied: "(a) zinc-deficient, (b) pair-fed controls (fed the amount of food eaten by the zinc-deficient dams on the previous day) injected with 100 μg zinc daily, and (c) ad libitum-fed controls, also injected daily with 100 μg zinc." Growth rate of the pups was studied. The pups were subsequently killed, and their organs were analyzed with the results presented and discussed. "Zinc is essential for synthesis of nucleic acids and protein. In individuals with protein-calorie malnutrition, an associated zinc deficiency may compound the effects of protein deprivation by impairing utilization of the limited protein available. Zinc deficiency in the human may thus contribute to the impaired brain growth reported to occur in infants with protein-calorie malnutrition."

320. Sarkin, Theodore Leonard: "Surgery of the Hand in Infants With Cerebral Palsy," *South African Medical Journal*, 45:655-657, June 19, 1971.

It is the theory of the author that "if corrective limb surgery is performed on cerebral-palsy patients as soon after birth as diagnosis and assessment permit, afferents which reach the brain establish an image of the corrected rather than of the deformed body, and natural and unthinking use of the limb is more likely to become established." Evidence is presented in the form of eight case reports of cerebral palsied babies, ages 12 to 18 months, on whom the described operative procedure on the hand was performed. The cases were followed for from seven to ten years.

321. Scanlon, John: "Human Fetal Hazards From Environmental Pollution With Certain Non-essential Trace Elements," *Clinical Pediatrics*, 11:135-141, March, 1972.

Discussed in this review article are the relationships that have been determined "between human fetal morbidity and heavy metal pollution." The routes by which metals can enter and accumulate in the body are explained. Mercury, lead, cadmium, titanium, nickel, tin, vanadium, niobium, and arsenic and their fetal effects are each considered with numerous research studies mentioned.

322. Scanlon, John: "Umbilical Cord Blood Lead Concentration," *American Journal of Diseases of Children*, 121:325-326, April, 1971.

Umbilical cord blood was analyzed for lead content in 13 neonates "whose mothers had spent their entire pregnancy living in metropolitan Boston" and in 15 neonates "whose mothers had lived in suburban Boston for their entire gestation." It was also noted whether or not these mothers smoked "cigarettes regularly during this pregnancy." No statistically significant relationships were found between lead levels and place of residence or between lead levels and cigarette smoking. "Only three cord blood lead levels were greater than 30 µg/100 ml. and these were all from infants of urban mothers." "If atmospheric contamination with lead continues at its present rate, further studies of cord blood lead concentration should be undertaken."

323. Scarr-Salapatek, Sandra, and Williams, Margaret L.: "A Stimulation Program for Low Birth Weight Infants," *American Journal of Public Health*, 62:662-667, May, 1972.

Thirty consecutively-born, low birth weight, socially disadvantaged infants were alternately placed in either an experimental or a control group for the purpose of studying the effects of supplimentary nursery and home stimulation given during the first year of life. Stimulation procedures are described. Development was evaluated at one week and four weeks of age by administration of the Brazelton Cambridge Newborn Scales, and at age one year the infants were given the Cattell Infant Intelligence Scale. Presented results showed the stimulation program "to be effective in promoting behavioral development." Although the control group had initial advantages, the experimental group had "a slight developmental advantage at four weeks of age," and "at one year of age the E group had significantly higher developmental quotients--nearly ten points higher than the C's who had not received home intervention." "The results of this study obviously support programs of early stimulation for biologically-socially disadvantaged infants."

324. Schattner, Regina: *An Early Childhood Curriculum for Multiply Handicapped Children*. New York: John Day, 1971. 143 pp.

After describing the multiply handicapped child, the author presents an early childhood curriculum for such children. The physical setting, staff, program, and daily activities are discussed. Separate chapters are devoted to "Language Development," "Introducing the Tool Subjects," "Arithmetic," "The Partially Sighted Child," and "The Blind Child." An appendix contains practical information and suggestions for organizing a trip, games and crafts, books, other equipment, and an example of a daily schedule. There is a bibliography.

325. Schifrin, Barry S.: "Fetal Heart Rate Monitoring During Labor," *Journal of the American Medical Association*, 222:196-202, October 9, 1972.

The limitations of assessing the fetal heart rate by auscultation and the meaning of the passage of meconium in utero are reviewed. The need for better means of monitoring the fetus is stated. Also reviewed are the principles of fetal heart rate monitoring and the interpretation of fetal heart rate patterns with the patterns of early deceleration, late deceleration, and variable deceleration explained. The diagnosis of acute fetal distress by means of fetal heart rate monitoring and the subsequent treatment are discussed as are the complications of such monitoring and the perspective of such monitoring.

326. Schifrin, Barry S.: "Fetal Heart Rate Patterns Following Epidural Anaesthesia and Oxytocin Infusion During Labour," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:332-339, April, 1972.

Continuous fetal heart rate monitoring was conducted during labor as described on 360 fetuses in four treatment groups in order "to study the effects of oxytocin stimulation and epidural anaesthesia on the individual fetus." "Neither epidural anaesthesia nor oxytocin stimulation was used in 119 patients (Group A); oxytocin stimulation with other forms of anaesthesia was used in 41 patients (Group B); epidural anaesthesia without oxytocin in 135 patients (Group C); and the combination of epidural anaesthesia and oxytocin stimulation in 65 patients (Group D)." The 360 records were analyzed for the appearance of late deceleration patterns as defined which are considered to be ominous with regard to the fetal condition. "The lowest frequency of ominous patterns was found when neither epidural anaesthesia nor oxytocin was used (Group A) and the highest frequency was recorded in patients who received both treatments (Group D)" with most of these fetuses having shown normal patterns before treatment. Methods found to improve these ominous patterns are described. No difference among the groups regarding neonatal outcome was noted. These and other results are discussed, implications are considered, and numerous other pertinent studies are mentioned.

327. Schifrin, Barry S., and Dame, Laureen: "Fetal Heart Rate Patterns; Prediction of Apgar Score," *Journal of the American Medical Association*, 219:1322-1325, March 6, 1972.

Fetal heart rate (FHR) and intrauterine pressure were continuously monitored as described within the last 30 minutes of labor in 307 cases. Results were then used to predict Apgar scores in these infants. Results indicated that "the normal FHR pattern was almost completely accurate in predicting a baby with a high Apgar score at five minutes." With two described exceptions, "every depressed neonate was anticipated on the basis of an abnormal FHR pattern." "Abnormal FHR patterns, however, were conservative predictors of low Apgar scores. It is anticipated that the accuracy of low predictions may be improved with modifications in the prediction system." The benefits of routine fetal monitoring are discussed.

328. Schub, Howard, and Maitinsky, Steven: "Multi-Handicapped Children's Center," *New York State Journal of Medicine*, 72:1031-1036, May 1, 1972.

The Nassau County Child Development Center in New York State, initiated and designed to serve the needs of the multi-handicapped child, is described. The Center serves children ages newborn to 15 years. "An attempt is made to define statistical trends of the patients as regards age, sex, diagnosis, source of referral, family size, parents' educational background, and the occurrence of birth complications and prematurity."

329. Schulman, Joseph D.; Queenan, John T.; Scarpelli, Emile M.; Church, Elizabeth; and Auld, Peter A.M.: "Lecithin-Sphingomyelin Ratios in Amniotic Fluid; Relation to Neonatal Condition and Gestational Age," *Obstetrics and Gynecology*, 40:697-701, November, 1972.

Amniotic fluid samples were obtained, and the L/S ratio was determined as described in 88 pregnant women at various stages of gestation. "Mean L/S ratios increased with advancing gestational age, but there was considerable overlap among the different gestational age groups in their ranges of L/S values." In 25 cases samples were collected within 72 hours of delivery, and these infants were closely followed as to respiratory distress symptoms. "The data support previous reports that high L/S ratios indicate infants who will not have respiratory distress, but the interpretation of low L/S values, which occurred in a significant percentage of premature and, sometimes, even in term deliveries seems quite uncertain." Results are compared to those of other studies.

330. Schulte, F.J.; Schrempf, Gerlind; and Hinze, Gabriele: "Maternal Toxemia, Fetal Malnutrition, and Motor Behavior of the Newborn," *Pediatrics*, 48:871-882, December, 1971.

Compared from birth were 21 small-for-gestational-age (SGA) neonates of toxemic mothers and 21 normal neonates. These two groups and the methods of comparison are described. They were compared as to ulnar nerve conduction velocity, neurological examination results, electromyographical results during the Moro reflex, and blood glucose determinations. The ulnar nerve conduction velocity was found to be normal in both groups. "The majority of infants of toxemic mothers were hypotonic and apathetic, and the mean scores for muscle tone and general excitability were significantly lower than in normal infants." These abnormal motor results in the infants of toxemic mothers could not be found to be due to "symptomatic hypoglycemia, neonatal asphyxia, or any other overt postnatal illness." Speculation on their cause is offered. "On the basis of animal experiments these results can be explained by the hypothesis that certain parameters of nervous maturation are influenced by fetal nutrition."

331. Scott, J.M., and Jordan, J.M.: "Placental Insufficiency and the Small-For-Dates Baby," *American Journal of Obstetrics and Gynecology*, 113:823-832, July 15, 1972.

A scoring system, devised to enable an objective, pathological diagnosis of placental insufficiency, is described. Using this scoring system, the placenta is examined with points being awarded under seven principle, listed headings. A score of over ten points indicates a markedly insufficient placenta. This system was employed in "a blind prospective pathologic survey of the placenta" conducted in 1970. Placental examination and statistical method and results are presented. "An 80 per cent correlation with the pediatric assessment of the baby was obtained." Other parameters have been added to the scoring system, statistical corrections were made, and "a new scoring system based on significance levels was devised." This new system is presented and its value is discussed.

332. Seeds, A. Elmore: "Adverse Effects on the Fetus of Acute Events in Labor," *Pediatric Clinics of North America*, 17:811-834, November, 1970.

Reviewed are "clinical problems commonly associated with fetal distress and the pathophysiological mechanism of their effect on the fetus." The process of "diffusion of respiratory gases across the placenta" is described as are pathologic conditions that alter the steady state of normal fetal oxygenation and thus cause fetal distress in labor and obstetrical patients who have high incidences of fetal distress in labor are identified. Also discussed is the management of fetal distress.

333. Segal, Sydney, ed.: *Manual for the Transport of High-Risk Newborn Infants; Principles, Policies, Equipment, Techniques.* Canadian Paediatric Society, 1972. 198 pp.

The contributors to this manual are members of the Foetus and Newborn Committee of the Canadian Paediatric Society. The manual is designed to be used as a ready reference source in ambulances, in hospitals, or in any situation where infants must be transported. Basic principles of infant transport are presented, and the major personnel involved and their training are described. Necessary equipment and its use are outlined including incubators, oxygen and associated equipment, aspirators and suction apparatus, electrical power supply units, infusion pumps, and other supplies. Preparation for and management during transfer are considered in separate chapters as is the management of the infant at the receiving hospital. In Chapter 7 a large number of the special clinical conditions that may require the transfer and that may require special care during transfer are individually discussed. Some "special procedures" are the topic of Chapter 8. Over 50 pages of this volume are devoted to appendices. Also included are a list of references, a glossary of terms, and a comprehensive index.

334. Segal, Sydney, and Pirie, Gordon E.: "Equipment and Personnel for Neonatal Special Care," *Pediatric Clinics of North America*, 17:793-810, November, 1970.

Identified in this paper are some of the appliances that have been found to be most useful in neonatal special care units. Discussed under the category of "thermal protection" are incubators, radiant heaters, etc. Various types of diagnostic and monitoring equipment are outlined as are numerous appliances used in neonatal patient management, such as portable oxygen equipment, oxygen hoods, ventilator therapy equipment, and infusion pumps. Staffing of a neonatal care unit is briefly considered.

335. Sell, Sarah H.W.; Merrill, Robert E.; Doyne, Emanuel O.; and Zimsky, Edmond P., Jr.: "Long-Term Sequelae of Hemophilus Influenzae Meningitis," *Pediatrics*, 49:206-211, February, 1972.

Eighty-six school age children, who had had proved H. influenzae meningitis and who had received "acceptable antibiotic therapy" in Nashville, Tennessee, were studied to determine long-term sequelae. The majority of these children had had the disease during their first year of life. Eleven were dead at follow-up. Fifty-six were examined as described at the Vanderbilt Medical Center, and in the cases of 19 children information was obtained via a questionnaire. The children were then classified according to state criteria. "Results indicated that 26 (29%) survivors had severe or significant handicaps; 12 (14%) had possible residuals; and 37 (43%) were free of detectable deficits." Many of the affected children were found to have multiple handicaps. "It was concluded that prevention of this disease should now be a prime goal."

336. Sell, Sarah, H.W.; Webb, Warren W.; Pate, John E.; and Doyne, Emanuel O.: "Psychological Sequelae to Bacterial Meningitis: Two Controlled Studies," *Pediatrics*, 49:212-217, February, 1972.

Two studies are described in which the long-term psychological sequelae of bacterial meningitis was assessed, using standardized tests, in school age children all of whom had experienced the disease before age 3 years. In the first study, 21 survivors were matched "with a near-age nonmeningitic sibling." All were given the Wechsler Intelligence Scale for Children. Findings showed the mean IQ score of the survivors to be 86 while that of the control siblings was 97. "Comparison of each subject with his control revealed that six (29%) were 15 IQ points (1 standard deviation) below the control. In two (10%) the difference exceeded 30 IQ points (2 standard deviations)." In the second study, 25 survivors who were considered to be free of sequelae were matched with classroom peers. All "were assessed along a wide spectrum of parameters" including the Illinois Test of Psycholinguistic Abilities, the Frostig Developmental Test of Visual Perception and the Peabody Picture Vocabulary Test. On all of these tests "the post-meningitic children functioned at significantly lower levels than their non-meningitic peers." "It was concluded that both groups of survivors were damaged by the disease. The evidence supports the need for prevention rather than reliance upon cure of meningitis."

337. Seppälä, M., and Ruoslahti, E.: "Alpha Fetoprotein in Amniotic Fluid: An Index of Gestational Age," *American Journal of Obstetrics and Gynecology*, 114:595-598, November 1, 1972.

Some of the work in the area of biochemical examination of amniotic fluid and gestational age is reviewed. Sixty-five amniotic fluid samples were analyzed for alpha fetoprotein by means of radioimmunoassay with 60 of the samples coming from the last trimester of pregnancy. A highly significant correlation was found between advancing pregnancy week during the last trimester and decreasing amniotic fluid alpha fetoprotein levels. Results are interpreted with the conclusion that determination of alpha fetoprotein levels might be a useful method of estimating gestational age.

338. Seppälä, Markku; Aho, Ilkka; Tissari, Anja; and Ruoslahti, Erkki: "Radioimmunoassay of Oxytocin in Amniotic Fluid, Fetal Urine, and Meconium During Late Pregnancy and Delivery," *American Journal of Obstetrics and Gynecology*, 114:788-795, November 15, 1972.

Amniotic fluid samples were obtained from 12 women in late pregnancy and from 25 women in labor. Oxytocin was extracted from all samples and concentrations were determined by radioimmunoassay. All methods are described. The oxytocin levels were found to be significantly higher in those women in labor than in those women in late pregnancy. Very high concentrations of oxytocin were found in three meconium samples. Levels were also reported in the urine samples of four neonates. "While no biological effect upon the rat uterus could be demonstrated in the immunoreactive material extracted from human amniotic fluid and meconium, the oxytocic effect of meconium was indicated by a shorter duration of labor after membrane rupture in a group of 495 women with green amniotic fluid (2.7 hours) than in 495 normal control subjects (4.6 hours)." "Expulsion of meconium into amniotic fluid could be a fetal response to intrauterine distress to initiate or speed up delivery."

339. Shah, Saroj I.; Alderman, Michael; Queenan, John T.; Brasel, Jo Anne; and Winick Myron: "Nondialyzable Peptide-Bound Hydroxyproline in Human Anniotic Fluid: An Indicator of Fetal Growth," *American Journal of Obstetrics and Gynecology*, 114: 250-254, September 15, 1972.

The properties and activity of this substance are described. Amniotic fluid specimens were collected in 151 patients at various gestational stages and the nondialyzable peptide-bound hydroxyproline content was determined as described. "The data establish that nondialyzable peptide-bound hydroxyproline is present in extremely high concentrations in human amniotic fluid. The total content progressively increases during the first two trimesters, whereas the concentration remains relatively constant. During the last trimester, the concentration of nondialyzable peptide-bound hydroxyproline falls progessively. Thus, the nondialyzable peptide-bound hydroxyproline content in amniotic fluid during the first two trimesters might provide a marker for fetal growth." Possible reasons for these findings are discussed. "At present, we are hypothesizing that the fetus swallows and hydrolyzes the material during the third trimester, causing a drop in nondialyzable peptide-bound hydroxyproline and an increase in small peptide fraction. These smaller molecules then cross the placenta and are excreted in material urine, perhaps providing a marker for fetal growth during the third trimester in maternal urine."

340. Sharp, Frank; Carty, Matthew J.; and Young, Hamish: "The Effects of Hypoxia on Hydroxysteroid Dehydrogenase Activity in Placental Villi Maintained in Organ Culture," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:44-49, January, 1972.

With all methods described, placental villi were obtained from the placentas of ten uncomplicated pregnancies, were maintained in organ culture in either a well-oxygenated or a hypoxic environment, and were studied histochemically with regard to hydroxysteroid dehydrogenase (HSD) enzyme activity. "HSD activity was diminished in hypoxia. The process is apparently selective, with trophoblastic activity more sensitive than that in villous core, and 3β-HSD more so that 17β-HSD. Also, with 17β-HSDs, activity using oestradiol-17β as substrate was more sensitive than that using testosterone as substrate. The possible correlation with the clinical picture in placental insufficiency is discussed."

341. Shelley, Trevor, and Tipton, Richard H.: "Dip Area; A Quantitative Measure of Fetal Heart Rate Patterns," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:694-701, August, 1971.

Methods used to classify fetal heart rate patterns are explained. "All agree that early decelerations are innocuous and late decelerations are sinister, but there is less agreement as to the significance of variable decelerations as a sign of fetal distress." The results and problems encountered in analyzing 100 fetal heart rate records are described as well as the method devised to aid in solving these analytical problems. This included the measurement of the "dip area." "Dip area is thus a measure of the amplitude, frequency and duration of the episodes of bradycardia and ignores the time relationship to uterine contractions." The value of using the dip area in assessing fetal condition is illustrated by the presentation of three case records. Dip area was found "to have a highly significant relationship to fetal outcome." The advantages of the method are discussed.

342. Shepard, Kenneth S.: "Air Transportation of High-Risk Infants Utilizing a Flying Intensive-Care Nursery," *Journal of Pediatrics*, 77:148-149, July, 1970.

The intensive-care nursery on the C-9 aircraft at Scott Air Force Medical Center near St. Louis is described as to equipment and experience.

343. Shepherd, David C., and McCarren, Kathy: "An Averaged Electroencephalic Audiometric Sensitivity (AEA-S) Procedure," *Journal of Speech and Hearing Disorders*, 37:503-522, November, 1972.

Presented are the instrumentation and method of an average electroencephalic audiometric (AEA) procedure that may be used "for gaining estimates of auditory sensitivity with children and adults who will not or cannot reliably respond during routine behavioral audiometry." Also considered are precautions to be used by clinicians who administer any AEA procedures. "An approach to selecting AEA estimates of auditory sensitivity" is described as are clinical data "from 32 difficult-to-test patients who ranged in age from three months to 51 years" obtained from using the presented AEA procedure.

344. Silverman, William A.: "Intensive Care of the Low Birth Weight and Other At-Risk Infants," *Clinical Obstetrics and Gynecology*, 13:87-106, March, 1970.

Discussed are the organizational aspects of intensive care of the newborn and the physical facilities for such care, including requirements concerning space, utilities, personnel, equipment, and costs. Described in the "Appendix" are the configuration for a neonatal intensive care unit; a "service shelf console system," which "is simply a common sense arrangement of all mechanical services needed to support a high-risk incubator infant in the most comprehensive method possible"; and suggestions for "intermediate and minimal care areas."

345. Simmons, S.C., and Lieberman, B.: "The Combined Use of Cardiotocography and Fetal Blood Sampling in Monitoring the Fetus in Labour," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:816-820, September, 1972.

Monitored during labor in routine hospital practice were a total of 306 patients who were either considered to be high-risk cases as described or who had developed signs of fetal distress. Of the 306 cases, 188 were monitored by cardiotocography alone and 118 were monitored by both cardiotocography and fetal blood sampling. This latter technique was employed when described, abnormal patterns were detected during the use of cardiotocography. Apgar scores were obtained and were compared to the results of monitoring. It is concluded that "although there was a high degree of accuracy in the diagnosis of fetal distress there are still limitations of monitoring methods for routine application."

346. Sisson, Thomas R.C.: "The Placental Transfusion," *Clinical Pediatrics*, 11:251-252, May, 1972.

Placental transfusion is defined and discussed with its apparent advantages and disadvantages noted. "Hyperbilirubinemia, especially in immature infants, is a frequent consequence of placental transfusion." It is concluded that until further studies on the effects of placental transfusion are conducted, "it would seem safe to say that for the fullterm infant a moderate placental transfusion is useful, and especially for the one delivered by Caesarean section, but perhaps this may be disadvantageous for the premature infant who has less resilience in accommodating to an increased blood volume."

347. Sisson, Thomas R.C.; Kendall, Norman; Shaw, Enid; and Kechavarz-Oliai, Lida: "Phototherapy of Jaundice in the Newborn Infant. II. Effect of Various Light Intensities," *Journal of Pediatrics*, 81:35-38, July, 1972. (Series: I cited in previous volume.)

Seventy-two newborns with hyperbilirubinemia were randomly assigned to one of three treatment groups, each of which consisted of 24 infants. Group 1 was exposed to 'daylight' lamps, Group 2 was exposed to standard blue fluorescent lamps, and Group 3 was exposed to "special blue lamps of narrow spectrum." Treatment methods are described. A decline in serum bilirubin concentration was seen in all three groups with treatment, but "the narrow-spectrum blue lamps, although they were the least luminous, had the highest energy output in the blue region and were the most effective in treating hyperbilirubinemia." The 'daylight' lamps were found to be the least effective. Implications are considered.

348. Smart, J.L.; Adlard, B.P.F.; and Dobbing, J.: "Effect of Maternal Undernutrition and Other Factors on Birth Weight in the Rat," *Biology of the Neonate*, 20:236-244, 1972.

The offspring of rats who were undernourished from day seven of pregnancy were studied and compared on a number of factors to the offspring of rats fed ad libitum during pregnancy. Maternal undernutrition was found to reduce significantly the birth weight of the offspring with the reduction being greater in those offspring having longer gestations. Undernutrition was not found to affect the length of gestation or the number of offspring born. "Litter size, length of gestation and sex of offspring also affected birth weight." Results are discussed.

349. Smart, J.L., and Dobbing, John: "Vulnerability of Developing Brain. II. Effects of Early Nutritional Deprivation on Reflex Ontogeny and Development of Behaviour in the Rat," *Brain Research*, 28:85-95, April, 1971. (Series: For I see #96, III see #6, IV see #350, V see #7, VI see #351, VII see #95, VIII see #5, IX see #94.)

The male offspring of rats, who had been malnourished as described during the last two weeks of pregnancy and continuing throughout the lactational period, were assessed as to the appearance of three physical features, the ontogeny of eight explained reflexes, and the development of exploratory behavior. Testing procedures are described. Results were compared to those of male offspring whose mothers had been fed ad libitum during the experimental period. Detailed results are presented and discussed. Among the findings were that "the appearance of 2 out of 3 physical features, and of 4 out of 8 reflexes was significantly delayed in the undernourished group," and "exploratory responses were first seen significantly later in the undernourished young."

350. Smart, J.L., and Dobbing, John: "Vulnerability of Developing Brain. IV. Passive Avoidance Behavior in Young Rats Following Maternal Undernutrition," *Developmental Psychobiology*, 5:2:129-136, 1972. (Series: For I see #96, II see #349, III see #6, V see #7, VI see #351, VII see #95, VIII see #5, IX see #94.)

In order to "test the hypothesis that young rats, stunted by underfeeding, are inferior to normal rats of the same age in a passive avoidance situation," young rats, who had been undernourished for most of their fetal lives and throughout the entire suckling period, were tested in a described passive avoidance situation at age 30 and 31 days. They had been fed ad libitum since age 21 days. Results were compared to those of normally fed young rats. "On the first test normal rats tended to cross between compartments more promptly than previously underfed rats. Cross-over latency was always greater on the second test than on the first. There were no significant differences in test 2 latency or in the ratio, text 2 latency/test 1 latency, between sexes, between normal and previously undernourished rats, between groups with 2-min. and 24-hr. interest intervals, or between master and yoked control rats. The last finding indicates that the apparent passive avoidance response may have been either nonspecific 'freezing' behavior following unpleasant stimulation, or inhibition specifically of movement, due to its association with shock."

351. Smart, J.L., and Dobbing, John: "Vulnerability of Developing Brain. VI. Relative Effects of Foetal and Early Postnatal Undernutrition on Reflex Ontogeny and Development of Behaviour in the Rat," *Brain Research*, 33:303-314, October, 1971. (Series: For I see #96, II see #349, III see #6, IV see #350, V see #7, VII see #95, VIII see #5, IX see #94.)

Pregnant rats were either fed ad libitum or an inadequate diet as described. At birth their offspring were cross-fostered to another mother, "such that the young were nutritionally deprived during only one period, either gestation or the suckling period." The offspring were then assessed as described with regard to their growth and development, including reflex ontogeny, exploratory behavior, and ability to balance. Results were compared to those from an earlier study in which the rats studied were either fed adequately or inadequately during both the gestational and the suckling periods. "Food restriction during gestation caused a 10% deficit in birth weight, but from the fifth postnatal day the growth rate was almost entirely determined by the postnatal nutritional regime. The effect of nutritional deprivation during gestation on reflex ontogeny and the development of physical features was negligible, while that of postnatal underfeeding was highly significant with respect to most characteristics maturing after day 10. Only the appearance of certain aspects of exploratory behaviour showed evidence of being retarded by gestational restriction. Nutrition during the suckling period was a major determinant of the frequency of upward responding in the open field. Balancing ability at 21 days tended to be impaired in rats underfed during the suckling period. The results are discussed in relation to the vulnerable period hypothesis of brain growth and development and its application to the human species."

352. Smith, A.C.; Flick, Grad L.; Ferriss, Gregory S.; and Sellmann, Adolph H.: "Prediction of Developmental Outcome at Seven Years From Prenatal, Perinatal and Postnatal Events," *Child Development*, 43:495-507, June, 1972.

Information on 301 low socioeconomic children, which was obtained in three stages, was used to predict developmental status at age seven years. "In stage 1, only prenatal and perinatal variables were used to predict performance at age 7. In stage 2, postnatal data from the first year of life were added to the stage 1 predictors. Finally, in stage 3 postnatal measures obtained subsequent to stage 2 and up to age 4 were used as an aggregate to predict 7-year performance." At age seven years a described "psychology-test battery" was administered to each child. Also described are the procedures of classifying the children into either a 'normal' or an 'abnormal' group, selecting 40 listed predictor variables, and analyzing data. "Although the present research was exploratory in nature, the results suggest that long-range prediction of ability performance using information from prenatal, perinatal, and postnatal developmental periods was feasible. Additionally, it was found that the use of sequential prediction stages, not only allowed for more accurate classification of Ss as normal or abnormal, but also indicated some optimal interval of time beyond which increments in predictive accuracy were negligible." Further research needs are described.

353. Smithells, R.W., and Speidel, B.D.: "Prenatal Influences and Prenatal Diagnosis," *British Medical Journal*, 4:105-108, October 9, 1971.

Individually examined are the prenatal influences and the prenatal diagnostic processes that occur and may be employed during fetal growth, in hemolytic disease of the newborn, in fetal hypoxia, and during fetal development.

354. Snyder, Russell D.: "Congenital Mercury Poisoning," *New England Journal of Medicine*, 284:1014-1016, May 6, 1971.

A case of congenital mercury poisoning with resultant neurologic damage is reported. Several other members of this infant's family displayed various symptoms "of acquired mercury poisoning secondary to the misuse of mercury-treated seed grain." Transplacental poisoning was the presumed cause of the infant's clinical condition. Symptoms are thoroughly presented. "Because of the widespread agricultural and industrial use of mercury the chemical is at great risk of entering into the food chain. An asymptomatic woman who ingests organic mercury compounds during pregnancy may produce a neurologically defective infant with cerebral palsy, mental retardation, convulsions, involuntary movements or defective vision."

355. Spellacy, W.N., and Buhi, W.C.: "Amniotic Fluid Lecithin/Sphingomyelin Ratio as an Index of Fetal Maturity," *Obstetrics and Gynecology*, 39:852-860, June, 1972.

Lecithin/sphingomyelin (L/S) ratios were determined in 190 amniotic fluid samples from 140 pregnant women by a described, "simple, rapid and reproducible semi-quantitative method" in order to test the value of this parameter and to compare this method with other amniotic fluid parameters of fetal maturity. Significant correlations were found between the amniotic fluid L/S ratio and infant birth weight, the percentage of cells staining orange with Nile blue dye, bilirubin content, creatinine content and the amniotic fluid/maternal blood creatinine ratio. Results concerning neonatal outcome with regard to respiratory problems and the L/S ratio are also reported. "This test is recommended before early delivery to decrease neonatal respiratory problems." Previous research in this area is reviewed.

356. Spellacy, W.N.; Buhi, W.C.; Birk, S.A.; and Holsinger, K.K.: "Human Placental Lactogen Levels and Intrapartum Fetal Distress: Meconium-Stained Amniotic Fluid, Fetal Heart Rate Patterns, and Apgar Scores," *American Journal of Obstetrics and Gynecology*, 114:803-808, November 15, 1972.

One thousand five hundred ninety-five serum human placental lactogen (HPL) samples were obtained as described from 1,100 high-risk pregnant women for the purpose of comparing HPL levels with certain measures of fetal distress, namely, the presence of meconium in amniotic fluid (seen in 39 patients), the determination and classification of fetal heart rate patterns (done in 179 women), and the 1 and 5 minute Apgar scores. Complications occurring in these study women are explained as are methods of study. Results indicated no relationship between the fetal heart rate patterns and the HPL levels, nor any relationship between the 5 minute Apgar score and the HPL levels. A significant positive correlation was found between the 1 minute Apgar score and the HPL levels "within 24 hours of the onset of labor." Also, significantly lower HPL levels were found in the women showing "meconium-stained amniotic fluid and a vertex presentation." Other work done with HPL levels as indicators of fetoplacental function is reviewed, and results are interpreted. "These results suggest that HPL may be clinically useful as a placental function test but also that it cannot be the only tool used for the selection of patients for intrapartum biophysical fetal monitoring.

357. Stembera, Z.K., and Horská, S.: "The Influence of Coiling of the Umbilical Cord Around the Neck of the Fetus on Its Gas Metabolism and Acid-Base Balance," *Biology of the Neonate*, 20:214-225, 1972.

"The content and pressure of the blood gases in both umbilical vessels and the individual ABB indices were examined" as described in the cord blood of 20 neonates whose umbilical cords were coiled around their necks. These neonates were divided into three groups according to clinical condition determined by Apgar score, with four of them displaying symptoms of hypoxia. Results were compared to those of a control group and are presented and discussed. "Decreased fetoplacental circulation appearing in encirclement of the umbilical cord is made up for by the fetus by increased utilization of the oxygen reserve from the blood flowing from the placenta. Yet, if this disturbance of the umbilical cord is combined with placental dysfunction the decreased supply and removal of acid metabolities can produce fetal acidosis and postpartal depression of the newborn.

358. Štembera, Z.K.; Hodr, J.; Kittrich, M.; and Janda, J.: "Fetoplacental Circulation in the Umbilical Cord When Coiled Around the Fetal Neck," *Biology of the Neonate*, 20:120-126, 1972.

Umbilical blood flow was measured as described immediately after birth in nine newborns whose umbilical cords were coiled around their necks. These neonates were divided into three groups according to clinical condition determined by Apgar score. Values of umbilical blood flow in these nine infants were compared to those of a control group, and results are presented and discussed. "In all cases a decreased respiratory value, as compared with the control group, was recorded. In clinically healthy newborns the loosening of the umbilical cord resulted in blood flow increase to normal values within 50-90 sec. after the delivery, whereas in hypoxic fetuses the blood flow remained permanently decreased. This finding refutes the mechanical cause as the only and main cause of the decreased blood flow. By simultaneous registration of the heart beat frequency of the newborn, the authors demonstrated that the decreased blood flow was due in the first place to decreased stroke volume and only in hypoxic fetuses was it also due to decreased heart beat frequency."

359. Stern, Leo: "Drugs, the Newborn Infant, and the Binding of Bilirubin to Albumin," *Pediatrics*, 49:916-918, June, 1972.

Factors affecting the binding of bilirubin to albumin are discussed, and a list is presented of "drugs capable of in vitro displacement of bilirubin from albumin on Sephadex G-25 columns."

360. Stewart, Ann: "The Risk of Handicap Due to Birth Defect in Infants of Very Low Birthweight," *Developmental Medicine and Child Neurology*, 14:585-591, October, 1972.

One hundred ninety-five low birthweight infants ($\leq$ 1,501 g.) were followed in order to determine the relationship between birth defects, as defined, and long-term handicaps, as defined. Ninety-eight survived and ninety-seven died before age one year. Of the 195 infants, 26 or 13 percent were found to have "recognisable birth defects" with the incidence being 16 percent in the 98 surviving infants and ten percent in the 97 who did not survive. Among those who survived there was a 2 percent incidence of long-term handicaps. It is thus concluded that "contrary to earlier suggestions, birth defect did not appear to be a major cause of long-term handicap in this group of infants of very low birthweight." Other implications with regard to the influence of modern care methods on the incidence of handicaps due to birth defects are discussed.

361. Stone, Martin L.; Weingold, Allan B.; and Lee, Bai Oong: "Clinical Applications of Ultrasound in Obstetrics and Gynecology," *American Journal of Obstetrics and Gynecology*, 113:1046-1052, August 15, 1972.

The basic principles of ultrasound are reviewed, and indications for its use are listed with its applications for obstetrics and for gynecology separately discussed. "Experience with over 3,000 patients indicates a high degree of accuracy in diagnosis of early pregnancy, multiple pregnancy, hydatid mole, and fetal death; in placental localization and in the measurement of biparietal diameter of the fetal head. Serial measurements of the biparietal diameter are valuable in following growth and development and in determining maturity. This is particularly useful in establishing the time for elective repeat cesarean section." No adverse effects of ultrasound under low intensity have been detected.

362. Studd, J.W.W.; Shaw, R.W.; and Bailey, D.E.: "Maternal and Fetal Serum Protein Concentration in Normal Pregnancy and Pregnancy Complicated by Proteinuric Pre-eclampsia," *American Journal of Obstetrics and Gynecology*, 114:582-588, November 1, 1972.

The serum concentrations of ten proteins were studied by stated methods in 18 normal mothers and their newborns and in 17 mothers with severe pre-eclampsia and their newborns for the purpose of determining "whether the maternal dysproteinemia induced by the proteinuria of pre-eclampsia is associated with any change in the serum protein patterns in the fetus." The values of these ten proteins in the mothers and in the umbilical veins at delivery from both the normal and pre-eclamptic groups are presented and discussed. "Babies born to mothers with pre-eclampsia had a significant elevation in alpha-1 antitrypsin, transferrin, and alpha-2 macroglobulin and a depression of throxine-binding prealbumin and IgG from normal values. Particularly notable was the unchanged concentration of fetal serum albumin, even in the presence of severe maternal hypoalbuminemia. These changes might be due to either (1) chronic maternal protein loss or (2) altered transplacental transference of amino acids in pre-eclampsia or (3) both. The possibility of neonatal hypogammaglobulinemia, dysmaturity and neurological deficit occurring as a result of chronic intrauterine nutritional deficiency of essential nitrogen is discussed."

363. Surtees, Olive B.: "Springboards as an Aid to Treatment of Children With Abnormal Motor Development," *Physiotherapy*, 58:175-176, May, 1972.

Three sizes of springboards are described and pictured, and the ways in which usage of such boards can be beneficial are explained. Those considered most likely to benefit from springboards are ataxic and athetoid children. Presented is "a progressive table of exercises for a four-year-old ataxic child."

364. Sutcliffe, R.G.; Brock, D.J.H.; Robertson, J.G.; Scrimgeour, J.B.; and Monaghan, J.M.: "Enzymes in Amniotic Fluid: A Study of Specific Activity Patterns During Pregnancy," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:895-901, October, 1972.

Amniotic fluid samples were obtained during various stages of pregnancy. Studied were the specific activity patterns of a group of enzymes in amniotic fluid. Methods are described. Results are presented concerning the specific activity patterns detected during pregnancy in the amniotic fluid enzymes, a -1, 4-glucosidase, heat-labile alkaline phosphatase, acid phosphatase, hexosaminidase, and placental alkaline phosphatase. "The results show that complex changes of enzyme specific activity occur in the amniotic fluid as gestation proceeds." "Yet, whatever the biological implications of these findings, the trends observed during the latter half of pregnancy suggest that the measurement of enzymes in amniotic fluid may be of use in the assessment of fetal maturity.

In particular, the changes in phosphatase activity, on both volume and protein bases, appear to merit further investigation." In the article which follows, Doctors Sutcliffe and Brock discuss their "Observations on the Origin of Amniotic Fluid Enzymes."

365. Svenningsen, N.W., and Siesjö, B.K.: "Cerebrospinal Fluid Lactate/Pyruvate Ratio in Normal and Asphyxiated Neonates," *Acta Paediatrica Scandinavica*, 61:117-124, March, 1972.

The rationale behind measuring the CSF lactate/pyruvate ratio to detect cerebral hypoxia is explained. Studied in 19 control infants without signs of asphyxia and in 21 infants who displayed signs of asphyxia were "the cerebrospinal fluid (CSF) lactate and pyruvate concentrations and the lactate/pyruvate ratios, the CSF pH, Pco_2 and bicarbonate concentrations, and the simultaneously registered arterial blood pH, Pco_2 and Po_2." Data on the infants and on the analytical methods are presented. It was found that in asphyxiated infants, studied within 24 hours of the asphyxial event, there was "a significant increase of the CSF lactate/pyruvate ratio." The results are discussed, and "it is suggested that cerebral hypoxia was responsible for the changes observed, and that analysis of the CSF lactate/pyruvate ratio may be of diagnostic value in perinatal asphyxia."

366. Sweigart, James E.: "Crutch Modification for Use With Hip Abduction Appliances," *Physical Therapy*, 52:946, September, 1972.

Described and pictured are such modified crutches. This modification was designed "to get the base of the crutches closer to the patient's abducted legs, thus providing greater mobility for a patient maintained in a hip-abducted position."

367. Swyer, Paul R.: "The Regional Organization of Special Care for the Neonate," *Pediatric Clinics of North America*, 17:761-776, November, 1970.

Discussed in regard to the regional planning for the care of high risk neonates are the need for such planning, the principles upon which such planning should be based, the "objectives of the organization," and methods of evaluating the degree to which these objectives are fulfilled.

368. Sybulski, S., and Maughan, G.B.: "Maternal Plasma Estradiol Levels in Normal and Complicated Pregnancies," *American Journal of Obstetrics and Gynecology*, 113:310-315, June 1, 1972.

Free estradiol levels in maternal plasma were measured as described in cases of uncomplicated pregnancy, in cases of intrauterine fetal death, in cases of maternal toxemia and in cases of intrauterine fetal malnutrition. In the normal pregnancies the estradiol levels were found to increase with pregnancy until approximately the 32nd week. Maternal estradiol levels were found to be "markedly low" in cases of intrauterine fetal death and "in the lower range of normal" in cases of maternal toxemia and fetal malnutrition. "The results of the present study show that determinations of maternal plasma estradiol levels are useful in the detection of feto-placental dysfunction in certain high-risk pregnancies."

369. Tachdjian, Mihran O.: *Pediatric Orthopedics*. Volume 1. Philadelphia: W.B. Saunders, 1972. 766+ pp. (Series: For II see #370.)

In Volume 1 of this two volume work Dr. Tachdjian considers in four chapters the diagnostic process in neuromusculoskeletal disorders, "Congenital Deformities," "Bone," and "Joints." Each subject is dealt with in detail with many illustrations included. Brief outlines precede and extensive, subject-divided bibliographies follow each chapter. An appendix follows Chapter 1. Each volume contains the complete "Index" for both volumes.

370. Tachdjian, Mihran O.: *Pediatric Orthopedics*. Volume 2. Philadelphia: W.B. Saunders, 1972. 1000+ pp. (Series: For I see #369.)

In Volume 2 of this two volume work Dr. Tachdjian extensively considers in four chapters "The Neuromuscular System," "The Spine," "The Foot and Leg" and "Fractures and Dislocations." Again there are abundant illustrations and bibliographies.

371. Taft, Lawrence T.: "Are We Handicapping the Handicapped?," *Developmental Medicine and Child Neurology*, 14:703-704, December, 1972.

In this editorial the author questions the physician's prescription of popular treatment techniques for the motor-disabled child. The reasons why physicians feel it necessary to prescribe these techniques are enumerated, but Dr. Taft believes it is time "to question the entire philosophy of treatment prescriptions." The financial commitment, the professional time involved, the parental commitment, and the time spent by the child himself should all be reconsidered. Personal experiences of the author are recalled to illustrate. It is then suggested that the handicapped child be motivated "to try a task and to practice it so he reaches the optimum efficiency his nervous system will allow" without stress placed on the child as to his style or the appearance of his performance of the task. "It may be necessary at present to forego the appearance of graceful posture and movement in favour of functional result rewarding for the child."

372. Takaku, A., and Suzuki, J.: "Cerebral Angiography in Children and Adults With Mental Retardation. Part I: Control Series," *Developmental Medicine and Child Neurology*, 14:756-765, December, 1972. (Series: For II see #373.)

Cerebral angiography was conducted on 14 post-mortem fetuses of various gestational ages, on 70 infants and children, and on 20 adults "in order to provide a control group for the authors' study of the angiographic appearances of mentally retarded children" (Part II). The patients and the technique are described. Results are presented on the fetal findings at gestational ages of four, five, six, seven, and eight months and on the newborn infant at age one month. Findings for the children and adults are presented with regard to "the following: (a) internal carotid artery; (b) carotid siphon; (c) anterior cerebral artery; (d) middle cerebral artery; and (e) degree of arterial filling." It is concluded that "cerebral angiography in the fetus and young child show differences from older children and adults." "Characteristic changes are observable in each age group and, in the younger age groups, the course of the cerebral arteries can be seen to be straight and smooth, with little undulation."

373. Takaku, A., and Suzuki, J.: "Cerebral Angiography in Children and Adults With Mental Retardation. Part II: Mentally Retarded Group," *Developmental Medicine and Child Neurology*, 14:766-782, December, 1972. (Series: For I see #372.)

The importance of any circulatory disturbance in the brain during fetal and early life is discussed with regard to the occurrence on mental retardation and cerebral palsy. The mentally retarded patients in this study on whom cerebral angiography was conducted totaled 108, ages three months to 25 years, and were divided into four groups: "(1) 15 cases in whom a birth injury was recorded at the time of delivery; (2) 42 cases in whom there were postnatal complications; (3) 26 patients who were considered to have either a hereditary predisposition to retardation or an abnormal brain formation during fetal life; and (4) 25 unclassified cases." Thirty patients had "some minor form of motor epilepsy," and 22 patients had "definite epileptic seizures." The same technique was used as was described in Part I. Findings are compared to those of the control group. Forty-four (41 percent) of the 108 mentally retarded patients displayed various abnormal findings. "These are discussed under the three headings: (a) internal carotid artery; (b) major carotid branches; and (c) the peripheral vascular tree" and are summarized in a three-page chart.

374. Thaler, M. Michael: "Neonatal Hyperbilirubinemia," *Seminars in Hematology*, 9:107-112, April, 1972.

Facets considered include the etiology, "the developmental aspects of bilirubin metabolism," associated disorders, and therapy for neonatal hyperbilirubinemia.

375. Thaler, M. Michael; Gemes, David L.; and Bakken, Arne F.: "Enzymatic Conversion of Heme to Bilirubin in Normal and Starved Fetuses and Newborn Rats," *Pediatric Research*, 6:197-201, March, 1972.

"Heme oxygenase (HO), the enzyme system responsible for the conversion of heme to bilirubin," was studied as described in the liver and spleen of adult, newborn, and fetal rats. Normal HO activity is explained. When the pregnant rats were fasted for three days prior to delivery, there resulted a significant increase in hepatic HO activity in the fetuses and newborns. When newborn rats were not allowed to nurse for three and six hours, "HO activity increased two- and threefold, respectively, compared with fed controls." "These observations indicate that a significant factor in jaundice of the newborn may be increased hepatic production of bilirubin, which may be further stimulated by starvation."

376. Thalhammer, Otto, ed.: *Prenatal Infections*. New York: Grune & Stratton, 1971. 84 pp.

The nine papers presented here were from the International Symposium of Vienna held in September, 1970. Various pre-natal infections, their diagnoses, and their effects are examined.

377. Thalme, B.; Engström, L.; Broberger, U.; Edström, K.; and Kretzschmar, G.: "Infants of Diabetic Mothers. II. Acid-Base and Electrolyte Balance During the First 48 Hours After Birth," *Acta Paediatrica Scandinavica*, 61:315-320, May, 1972. (Series: For I see #376.)

Blood samples were taken at described intervals during the first 48 hours of life in eight infants of diabetic mothers (IDM) and in eight infants of healthy mothers (IHM), all of whom had been delivered by cesarean section, in order to study the acid-base and electrolyte balance in IDM. Blood sampling and analysis methods and the infants are described. Acid-base balance was not found to differ significantly in IDM or IHM, "although there were some variations within the groups." "In IDM the slow fall in Pco_2 with age resulted in a high pH, and in IHM a late increase in metabolic acidosis was related to a low caloric intake." Other variations are described and the early management of the IDM, which was felt to result in the low incidence of hyperbilirubinemia and hypoglycemia in this group of infants, is discussed.

378. Thalme, Bertil, and Engström, Lars: "Acid-Base and Electrolyte Balance in Newborn Infants of Diabetic Mothers," *Acta Paediatrica Scandinavica*, 58:133-140, March, 1969. (Series: For II see #377.)

The acid-base and electrolyte status was studied in eight infants of diabetic mothers (IDM), eight infants of healthy mothers (IHM), and the 16 mothers. All infants were delivered by cesarean section. The infants, the mothers, blood sampling and analysis methods, and the results of comparison are presented. It was determined that "the acid-base and electrolyte balance of the newborn infant of a well-controled diabetic mother did not differ significantly from that of a newborn infant of a healthy mother."

379. Thiessen, H.; Jacobsen, J.; and Brodersen, R.: "Displacement of Albumin-Bound Bilirubin by Fatty Acids," *Acta Paediatrica Scandinavica*, 61:285-288, May, 1972.

Investigated "by measuring increases of oxidation rate of bilirubin with peroxidase and ethyl hyproperoxide" was the possibility that fatty acids might displace bilirubin from its binding to human plasma albumin and thus precipitate kernicterus. It was found that "amounts of fatty acid in excess of 4 mol per mol albumin are needed to cause displacement, equally in the presence of 0.5 or 1.8 mol bilirubin." "Actual concentrations of non-esterified fatty acids in vivo, even in the newborn are thus too low to cause any displacement of bilirubin from binding to albumin."

380. Thomas, V.H., and Hopkins, I.J.: "Arteriographic Demonstration of Vascular Lesions in the Study of Neurologic Deficit in Advanced Haemophilus Influenzae Meningitis," *Developmental Medicine and Child Neurology*, 14:783-787, December, 1972.

Five case reports of hemophilus influenza meningitis are summarized. All of the children were under age two years when the disease occurred, and in all of the cases cerebral angiography was used to reveal the severe cerebral damage that resulted. "Narrowing or occulsion of major intracranial arteries, especially around the base of the brain, was demonstrated angiographically in all patients. These findings provide further information as to the mechanism of neurologic deficit in such patients."

381. Tipton, Richard H., and Finch, Ann K.: "The Measurement and Significance of Transient Fetal Bradycardia During Labour," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:133-134, February, 1972.

The fetal heart rate records of 155 patients, who "were selected for monitoring either because the fetus was considered to be at risk or because clinical fetal distress was detected during labour" were analyzed and compared to the 1-minute Apgar score. It was found that "the quantitative measure of transient bradycardia during labour is significantly related to the neonatal condition."

382. Tipton, Richard H., and Shelley, Trevor: "An Index of Fetal Welfare in Labour," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:702-706, August, 1971.

One hundred fetal heart rate records for the final hour of labor were analyzed with regard to the number of fetal distress signs, the passage of meconium, the deviations from the basal heart rate, and the irregularity of the fetal heart rate. A scoring system or index was devised whereby "the fetus was given a score of 10, and points were subtracted according to the signs of fetal distress." Thus the index score could be used to predict the Apgar score of the infant. The index was calculated from the dip area, the fetal basal heart rate, and the presence or absence of meconium in the hour prior to delivery. A highly significant relationship to the Apgar score was found, and "this index appears to surpass other methods of predicting fetal outcome in labour."

383. Todd, Jennifer M.: "Facilitation of Movement as Taught at Vallejo," *Physiotherapy*, 58:415-419, December, 1972.

The selection of the treatment technique to be used on the individual patient is discussed. Specific problems encountered in treatment are then considered. These include weakness; spasticity, inco-ordination; diminished sensation; pain, rigidity; respiration problems; facial weakness; mouth, tongue, and swallowing problems; and vocalization problems. Then described is the application of the techniques which were chosen. The beneficial use of mat and gait programs is also discussed.

384. Tompkins, Winslow T.: "National Efforts to Reduce Perinatal Mortality and Morbidity," *Clinical Obstetrics and Gynecology*, 13:44-56, March, 1970.

Such efforts are reviewed. Among them are the Maternity and Infant Care Program efforts to help the school-age pregnant girl, the Children and Youth Programs, efforts made to reduce prematurity, family planning, and other efforts made on a national basis to reduce perinatal mortality and morbidity.

385. Touchstone, Joseph C.; Glazer, Lilly G.; Bolognese, Ronald J.; and Corson, Stephen L.: "Gestational Age and Amniotic Fluid Protein Patterns," *American Journal of Obstetrics and Gynecology*, 114:58-61, September 1, 1972.

A study is described in which the amniotic fluid protein electrophoretic patterns were analyzed in 60 described obstetric patients in order "to evaluate the specific amniotic fluid proteins and their changes with respect to stage of pregnancy." Six separate protein bands were detected with the pre-albumin fraction showing a definite pattern of increasing with gestational age with a peak at week 38 and a sharp decline after week 40. Such a relationship with gestational age suggests that pre-albumin determinations may be of value in assessing prolonged pregnancy.

386. Touwen, Bert C.L.: "Laterality and Dominance," *Developmental Medicine and Child Neurology*, 14:747-755, December, 1972.

These two terms are defined, and their complex relationship is discussed with many pertinent studies mentioned. Also considered are the development of and the assessment of handedness and the morphological differences, if any, between cerebral hemispheres. Then discussed are the etiology and the clinical meaning of laterality and dominance. Six conclusions are listed. "One of the conclusions reached in this paper is that a finding of left-handedness or cross laterality should not be regarded as a neurological sign without further evidence." An appendix contains a list and description of various tests used to assess handedness.

387. Tovey, L.A. Derrick: "The Use of Anti-D Gamma Globulin for the Prevention of Rh Immunization," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:107-112, February, 1972.

Reported are the results of administering English anti-D gamma globulin to 2,319 women following delivery, of whom 546 had subsequent pregnancies during the study period. Procedures are described. Of the 2,319 women who had a six months' follow-up examination, there was a 0.55 percent failure rate. Of the 546 who had subsequent pregnancies, there was a 1.6 percent failure rate. These seven cases are described with it being noted that all of the infants were "mildly affected," requiring no exchange transfusions. "There was little correlation between the incidence of failures, the pre-injection Kleihauer count and the dose of anti-D gamma globulin given." Results are discussed and compared to those of similar studies.

388. Townes, Philip L., and Ferrari, Bernard T.: "Pepsinogen 7 as an Indicator of Neonatal Maturity: Preliminary Studies," *Journal of Pediatrics*, 80:815-819, May 1972.

The importance and difficulty of accurately estimating the gestational age of the neonate is discussed. Urinary pepsinogen excretion was examined in 54 newborns, who had been judged to be full-term, and in 17 newborns, who had been judged to be premature, in order to determine if any correlation existed between such excretion and gestational age. Methods are described. The results indicated that pepsinogen 7 excretion "appears to be associated with prematurity" while "nonexcretion or transition to nonexcretion appears to be associated with term maturity." It is concluded that Pg7 may thus be a useful biochemical indicator of neonatal maturity.

389. Tsao, Y.C., and Yu, Victor Y.H.: "Albumin in Management of Neonatal Hyperbilirubinemia," *Archives of Disease in Childhood*, 47:250-256, April, 1972.

Previous work in the area is reviewed. Reported is a study conducted on a total of 27 hyperbilirubinemic neonates who had no hemolytic disease. In the first part of the study albumin was administered to seven of the infants to determine its effects "on the plasma volume, intravascular bilirubin, and HBABA-binding capacity during the subsequent 2 to 4 1/2 hours before exchange transfusion." Results are presented. In the second part of the study to determine the effect of albumin on exchange transfusion, seven infants were given albumin before an exchange transfusion as described (A), seven infants were given an exchange transfusion without any albumin (B), and six infants received an exchange transfusion in which albumin had been added to the donor's blood as described (C). The efficiency of exchange transfusion in removing bilirubin was found to be lowest in Group A and highest in Group C. "It is concluded that albumin offers immediate and short-term protection against bilirubin toxicity, and albumin-priming should be useful in situations where the babies are admitted with high bilirubin levels and blood is not immediately available for exchange transfusion." "If albumin is used to increase the efficiency of exchange transfusion, it should be given together with donor's blood or shortly before the procedure."

390. Tuchmann-Duplessis, H.: "Teratogenic Drug Screening; Present Procedures and Requirements," *Teratology*, 5:271-286, June, 1972.

Reviewed are the official guidelines of the government for drug testing and for reproduction studies. Individually described are the three parts of the experimental procedure which deal with a phase of reproduction. "These are (1) fertility and general reproductive performance, (2) teratology, and (3) peri- and postnatal development." Also considered in detail is the selection of the species of animals to be used for teratogenic drug study. "The greatest drawback in predicting from experimental data the effects of drugs on man lies in the different reactions among species." The rodent, pig, dog, cat and the primates are separately considered as to their suitability for use in drug testing with studies in which they were used reviewed. The "validity of present testing methods" and the "prospects for future improvements in teratogenic drug testing" are discussed.

391. Tulchinsky, Dan; Hobel, Calvin J.; Yeager, Elizabeth; and Marshall, John R.: "Plasma Estradiol, Estriol, and Progesterone in Human Pregnancy. II. Clinical Applications in Rh-Isoimmunization Disease," *American Journal of Obstetrics and Gynecology*, 113:766-770, July 15, 1972. (Series: For I see #392.)

Plasma progesterone (P), plasma unconjugated estradiol (E_2), and plasma unconjugated estriol (E_3) were measured as described in 12 patients with Rh-isoimmunization disease in order to determine the relationships between these three hormones in such cases. Eight of the patients were classified as having severe disease while four had mild disease. "An abnormal ratio of either E_2/E_3 or P/E_3 was found to precede each of 5 perinatal deaths attributed to hemolytic disease. Normal ratios of both E_2/E_3 and P/E_3 were found in 6 of 12 patients and were associated with good fetal prognosis." It is concluded that "determining both E_2/E_3 and P/E_3 ratios is necessary for predicting fetal well-being in patients with Rh-isoimmunization disease." "The method may be helpful in the follow-up of patients who undergo intrauterine fetal transfusion and may provide a more thorough assessment of fetoplacental function."

392. Tulchinsky, Dan; Hobel, Calvin J.; Yeager, Elizabeth; and Marshall, John R.: "Plasma Estrone, Estradiol, Estriol, Progesterone and 17-Hydroxyprogesterone in Human Pregnancy. I. Normal Pregnancy," *American Journal of Obstetrics and Gynecology*, 112:1095-1100, April 15, 1972. (Series: For II see #391.)

Progesterone, 17 hydroxyprogesterone, and unconjugated estrone (E_1), unconjugated estradiol (E_2), and unconjugated estriol (E_3) concentrations in plasma samples were determined throughout normal human pregnancies as described. Progesterone and the unconjugated estrogens were found to "gradually increase throughout later pregnancy whereas 17-hydroxyprogesterone increases only after the thirty-third week." Progesterone was found to be "the main steroidal hormone in human pregnancy with mean plasma concentrations of at least ninefold higher than any of the three classical unconjugated estrogens." Other findings regarding the comparison of these hormone concentrations and ratio calculations are reported, and the value of their determination in pregnancy is discussed. "Comparing hormones which are primarily of placental origin (progesterone) with those which arise partially from maternal (E_2) or largely of fetal sources (E_3) may provide a more thorough assessment of the components of the maternal fetoplacental unit than is possible by only looking at single hormone levels. It may perhaps permit differentiation of whether abnormal hormonal production is due to placental or fetal abnormalities. It may perhaps also identify certain hormone concentrations as abnormal for an individual particular fetoplacental unit in circumstances where the usual comparison to a range of normal values would have failed to recognize the abnormality."

393. Turkewitz, Gerald; Birch, Herbert G.; and Cooper, Kenneth K.: "Patterns of Response to Different Auditory Stimuli in the Human Newborn," *Developmental Medicine and Child Neurology*, 14:487-491, August, 1972.

In order to determine "the relationship between the nature of auditory signals and the type of response made by two-day-old infants," response patterns were studied in 20 female neonates to whom pure tone stimuli of various durations were presented and in 25 female neonates to whom mixtures of pure tones were presented. All methods are explained. "The results indicate (a) that a pure tone is not an effective stimulus for the newborn infant even when stimulation is of long duration; (b) that combinations of independently ineffective tones, presented for one second with no increase in total objective intensity are effective stimuli for the newborn infant; and (c) that different combinations of pure tones result in different patterns of response." Implications of these findings are discussed.

394. Tyler, Nancy, and Kogan, Kate L.: "The Social By-Products of Therapy With Young Children," *Physical Therapy*, 52:508-513, May, 1972.

Reported here is the initial phase of a study of the interpersonal relationships formed by ten cerebral palsied children, ages one year and three months to four years and one month, with their mothers and therapists at The Spastic Children's Clinic and Preschool, Seattle, Washington. The preschool program at this facility is briefly described. Verbal and nonverbal data were collected and analyzed as described from six interaction sessions: "Two sessions of unstructured play between mother and child, two sessions of therapy conducted by the mother, and two sessions of therapy conducted by the therapist." A rating system is described by which three parameters were assessed during these sessions and assigned values. These three were "relative status, affection, and involvement." Results are presented with regard to the comparison of mother-child-play and mother-child-therapy interactions and the comparison of mother-child therapy and therapist-child therapy interactions. "Results suggested that the mother-child therapy interactions were especially stressful, and that mothers might benefit from help in evaluating the interpersonal aspects." Results are summarized and discussed, and future phases of this longitudinal study are considered.

395. Unger, F.W., and Goodwin, James W.: "Instrumentation for Fetal Electrocardiography and Intrauterine Pressure: A New Scalp Electrode and Radiotelemetry System," *American Journal of Obstetrics and Gynecology*, 112:351-357, February 1, 1972.

Described is a recently developed "scalp electrode clip and a telemetry system for the radio transmission of FECG (fetal electrocardiography) and intrauterine pressure signals" to be used to assess fetal well-being during labor. The procedures to be employed with its usage and results of its usage are presented. "This type of system approach obviates the problem of cable connections between patient and recorder, which virtually eliminates the shock hazard to the fetus." "It requires no endoscope or forceps for application and can be attached with ease to the fetal scalp by pressing and subsequently releasing the plunger on the distal end of the probe."

396. Urrusti, J.; Yoshida, P.; Velasco, L.; Frenk, S.; Rosado, A.; Sosa, A.; Morales, M.; Yoshida, T.; and Metcoff, J.: "Human Fetal Growth Retardation: I. Clinical Features of Sample With Intrauterine Growth Retardation," *Pediatrics*, 50:547-558, October, 1972. (Series: For II see #429, III see #306.)

Characteristics commonly found in intrauterine growth retarded infants and their mothers are described. Comprising the presented study were 128 neonates and their mothers. Of these 128 newborns, 86 weighed 2.5 kg. or less. Of these 86, 36 were considered to be small for gestational age with the majority displaying the clinical signs of intrauterine growth retardation (IUM), and 50 infants were considered to be appropriate for gestational age (AGA). The remaining 42 study infants were considered to be full term newborns (FT). Maternal and infant data were compared for these three groups. "The mothers of these three groups of infants were similar with respect to age, weight, height, nutritional patterns, and prior pregnancy histories." With regard to the infant findings, the IUM infants in the study were similar in gestational age to the FT infants, "but were smaller than term infants with respect to weight, length, cephalic, thoracic, and abdominal circumferences, and a lower weight-length ratio." "With respect to low birth weight, premature (AGA) infants, the IUM infants had about a five-week longer gestation period in this series, but were of similar weight, were longer, had slightly greater cephalic and thoracic circumferences, similar abdominal circumference and similar weight-length ratios." There were three neonatal deaths in the IUM group and nine in the AGA premature group. Results are discussed, and three "types of fetal growth retardation which may be related to maternal malnutrition" are differentiated.

397. Vaillancourt, P., and McCallion, D.J.: "Inhibitory Effects of Nephrotoxic Antisera on the Growth of Rat Fetuses," *American Journal of Obstetrics and Gynecology*, 114:255-258, September 15, 1972.

Previous work and findings in this area are reviewed. On the eighth gestational day, "nephrotoxic antisera obtained in rabbits and previously demonstrated to be teratogenic" was administered as described to a group of pregnant rats. The rats were then sacrificed on days 12, 14, 16, 18, or 20. The fetuses were removed, were weighed, and were compared to those in control groups. "The fetuses from treated mothers were significantly smaller than those from control mothers for each gestational day. It is suggested that nephrotoxic antiserum adversely affects the nutritive role of the yolk sac, causing nutritional deficiency in the fetuses which, in turn, results in growth retardation." More study is deemed necessary before any parallel to the small-for-dates human infant can be suggested.

398. Valenti, Carlo: "Endoamnioscopy and Fetal Biopsy: A New Technique," *American Journal of Obstetrics and Gynecology*, 114:561-564, October 15, 1972.

This technique that enables the visualization of the fetus in utero and the obtaining of tissue biopsies from the fetus during the second trimester of pregnancy is described. The method was used on six human patients during abortive hysterotomy at between weeks 14 to 18 of gestation. More research on sheep and primates is planned in order to detect any consequences of the method to either the mother or the fetus. "The applications of endoamnioscopy to human physiology and pathology are vast, not only for diagnostic purposes but also for in utero treatment when available. One potential early use of therapeutic endoamnioscopy is intrauterine blood transfusion of erythroblastotic fetuses under direct vision."

399. Van de Putte, I.; Renger, M.; Vermylen, C.: "Counting Fetal Erythrocytes as a Diagnostic Aid in Perinatal Death and Morbidity," *American Journal of Obstetrics and Gynecology*, 114:850-856, December 1, 1972.

The case reports of four cases of perinatal death and two cases of neonatal morbidity are presented. These cases occurred in a series of 5,001 pregnant patients by a simple described test in which the fetal erythrocytes in the maternal circulation are counted. "This paper outlines the necessity of counting fetal erythrocytes in the maternal circulation after every delivery, in vaginal blood loss during the third trimester of pregnancy, and when blood is aspirated at amniocentesis. Fetal erythrocyte counting is a valuable aid in fetal care and in perinatal mortality and neonatal morbidity." Indications for the use of the test are listed.

400. Wagner, Anna Lise, and Buchthal, Fritz: "Motor and Sensory Conduction in Infancy and Childhood: Reappraisal," *Developmental Medicine and Child Neurology*, 14:189-216, April, 1972.

In this detailed review article the principles and methodology of the subject are discussed as is "motor and sensory conduction in normal infants and children." Also considered is "abnormal motor and sensory conduction" with the limitations of recognizing impairments by means of motor and sensory conduction noted. A lengthy bibliography on the subject follows the text.

401. Waisman, Harry A., and Kerr, George R.: *Fetal Growth and Development*. New York: McGraw-Hill, 1970. 320 pp.

This volume was based on a conference held in San Diego, California in November 1968 and sponsored by the Department of Pediatrics of the University of Wisconsin School of Medicine and the Johnson and Johnson Institute for Pediatric Service. It contains the contributions of some of the participants in this conference. The 26 papers consider aspects of the six general topics of the conference: "Placental and Fetal Growth, Monitoring the Intrauterine State, Fetal Diagnosis, Determinants of Fetal Growth, Abnormalities of Fetal Growth, and the Postnatal Sequelae of Intrauterine Disease." Reference lists follow each chapter.

402. Wallace, Helen M.: "Factors Associated With Perinatal Mortality and Morbidity, *Clinical Obstetrics and Gynecology*, 13:13-43, March, 1970.

Discussed are the trends in infant and neonatal mortality in the United States, the fetal death rate, the status of perinatal mortality, the numerous factors associated with perinatal mortality, the age and cause of death, the prevention of perinatal mortality, morbidity, the Apgar score, and the concept of high risk. Several statistical charts are included as is a lengthy list of references.

403. Wallace, Helen M.: "Present Status and Future Directions for the Care of Handicapped Children in Large Cities of the United States," *Clinical Pediatrics*, 11: 4-7, January, 1972.

Pertinent facts about the current status of such care are presented in tables and in the text. Several principles of the "official state crippled children's program" are listed. It is felt that the data show a "need to decentralize and regionalize the State Crippled Children's Programs to the local level" and also the need for the decentralization of the planning and administration of services for handicapped children. Also noted is the need for "locating satellite services for handicapped children in the low-income areas of the large cities."

404. Wallace, Sheila J.: "Aetiological Aspects of Febrile Convulsions; Pregnancy and Perinatal Factors," *Archives of Disease in Childhood*, 47:171-178, April, 1972.

Compared were the birth and pregnancy histories of 132 children who had experienced febrile convulsions and 180 of their siblings who had not had convulsions. Study methods are described, and much data on the two groups of children are presented. The convulsive group was found to have "experienced significantly more often threatened abortion, maternal medication during pregnancy, caesarean section, and moderately low birthweight." Eighty or 61 percent of the convulsive group had at least one pregnancy or perinatal abnormality as described, compared to 39 or 22 percent of the sibling group. "It is concluded that an abnormal pregnancy or birth history predisposes to febrile convulsions."

405. Washington, Juan L.; Brown, Archie W., Jr.; and Starrett, Andrea L.: "The Question of Diarrhea and Phototherapy," *Pediatrics*, 49:279-280, February, 1972.

A study is described in which the incidence of diarrhea was determined in a series of infants having birth weights of under five pounds, some of whom received phototherapy. Seventy-six of these infants received at least 24 hours of phototherapy treatment, and the incidence of diarrhea in this group was 17.1 percent. The incidence of diarrhea in the 371 infants receiving no phototherapy was 14.8 percent. "This study fails to confirm a significantly increased incidence of diarrhea in low birth weight infants receiving phototherapy."

406. Watanabe, Kazuyoshi, and Iwase, Katsuhiko: "Spindle-Like Fast Rhythms in the EEGs of Low-Birth-Weight Infants," *Developmental Medicine and Child Neurology*, 14:373-381, June, 1972.

Twenty-eight pre-term and 11 small for date infants were studied with regard to the "spindle-like fast rhythms," previously seen in the EEGs of pre-term infants, in order "to provide more precise data on this activity in relation to behavioural states and post-conceptional ages." Methods and results are presented. Four principle findings are listed in the "Summary" and provide "further quantitative evidence in favour of previous findings that CNS development is more closely related to post-conceptional age than to post-natal age or birthweight."

407. Watanabe, Kazuyoshi; Iwase, Katsuhiko; and Hara, Kimiko: "Maturation of Visual Evoked Responses in Low-Birthweight Infants," *Developmental Medicine and Child Neurology*, 14:425-435, August, 1972.

The importance of being able to distinguish the small-for-dates newborn from the pre-term newborn is discussed. The visual evoked responses (VERs) of 11 small-for-dates infants and 15 pre-term infants were studied for the purpose of testing "the validity of using VERs to differentiate between these two groups of low-birthweight newborns on the basis of the polygraphic recording." A total of 104 polygraphic EEG recordings were analyzed. The infants and the detailed methods used are described. Five principle findings are listed in the "Summary." The wave form of the visual evoked response was found to manifest "a definite sequence of development with conceptional age." "The VERs of small-for-dates infants were proportional to the conceptional age both in their latencies and wave forms, indicating that they are not affected by the intrauterine growth retardation." "The wave form of the VER, rather than the peak latencies, is an additional and valuable tool for distinguishing between true pre-term and small-for-dates infants, especially in those older than 37 weeks conceptional age."

408. Wender, Paul H.: *Minimal Brain Dysfunction in Children.* New York: Wiley-Interscience, 1971. 242 pp.

Specific aspects of "The Minimal Brain Dysfunction Syndrome" discussed in Part One of this volume include the characteristics, etiology, prevalance, diagnosis, prognosis, and management. In Part Two, entitled "The Theoretical Basis of the MBD Syndrome," both "A Psychological Theory" and "A Physiological Theory" are described. Twelve case histories are presented in the "Appendix" which is followed by a bibliography.

409. Werch, A., and Kaufman, R.H.: "Fetal Monitoring," *American Family Physician,* 5:91-97, April, 1972.

Discussed are the methods of fetal monitoring used to assess fetal maturity and to detect fetal distress. Specifically considered with regard to monitoring for fetal distress are the analysis of maternal urine for urinary estriol estimation, amniocentesis, amnioscopy, the analysis of maternal serum, the analysis of fetal scalp blood, and electronic monitoring of the fetus during labor.

410. Wharton, B.A.; Foulds, J.W.; Fraser, I.D.; and Pennock, C.A.: "Amniotic Fluid Total Hydroxyproline and Intrauterine Growth," *Journal of Obstetrics and Gynaecology of the British Commonwealth,* 78:791-797, September, 1971.

The total hydroxyproline (THP) concentration and the total hydroxyproline: creatinine (THP/Cr) ratio were determined in 154 samples of amniotic fluid as described in order to compare these values with the development of the fetus. The pregnancies involved are described. The results present the profiles seen during these pregnancies in the THP, the creatinine, and the THP/Cr ratio values. "Total hydroxyproline concentrations tended to be lower in those pregnancies producing small-for-dates babies and those at particular risk of intrauterine growth correlation and the possible clinical use of determining these concentrations in amniotic fluid. "There is some evidence that changes in amniotic fluid total hydroxyproline and total hydroxyproline:creatinine ratio are related to intrauterine growth. Further information particularly from other animals is required.

411. White, Charles A.; Musiala, Theodore S.; and Witte, David L.: "Amniotic Fluid Lecithin/Sphingomyelin Ratio as a Measure of Fetal Pulmonary Maturity," *Journal of the Iowa Medical Society,* 62:279-284, June, 1972.

Two series of obstetric patients were studied with regard to amniotic fluid lecithin/sphingomyelin (L/S) ratios. These ratios were then compared to the amniotic fluid "analyses of creatinine, bilirubin and cellular cytologic examination as well as to fetal biparietal diameter as determined by ultrasound and the presence of fetal distal femoral epiphyses from x-ray examination." In the first series a total of 58 amniocenteses were conducted at various stages of pregnancy on 40 patients. L/S ratios were determined "strictly in accordance with the technique of thin-layer chromatography described by Gluck." In the second series 15 amniocenteses were conducted on 14 patients. L/S ratios were determined by using a described "modification of Gluck's technique which appeared to offer many advantages." Results are presented in chart form for all patients on all tests conducted. Discussion of the results and conclusions are presented. The modified Gluck technique used in the second series of patients appears to have merit but more experience with its use is needed.

412. Whitfield, C.R.; Chan, W.H.; Sproule, W.B.; and Stewart, A.D.: "Amniotic Fluid Lecithin:Sphingomylin Ratio and Fetal Lung Development," *British Medical Journal*, 2:85-86, April 8, 1972.

Amniotic fluid samples were obtained and the lecithin:sphingomyelin ratios were estimated as described in both normal and abnormal pregnancies in order to determine the accuracy of this method for assessing fetal lung development and the risk of neonatal respiratory distress. Normal trends in the last trimester are described. The results confirm the accuracy of the method. Findings also indicated that in some cases of diabetes and severe rhesus incompatibility, the expected rise in the lecithin:sphingomyelin ratio near term did not occur. Thus the ratio may be a valuable aid in the management of such abnormal pregnancies. Results are discussed and compared to those of other researchers.

413. Whitfield, C.R.; Thompson, W.; Armstrong, M.J.; and Reid, M. McC.: "Intrauterine Fetal Transfusion for Severe Rhesus Haemolytic Disease," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 79:931-940, October, 1972.

Reviewed is the experience with intrauterine fetal blood transfusions over a 76 month period at "a centre providing a large regional service for the management of rhesus immunization" in Northern Ireland. During this period 252 such transfusions were carried out on 166 out of 1,600 fetuses in rhesus-immunized women. The review period was divided into three phases on the basis of techniques used and experience of the team. Phase I was considered a trial period while during Phases II and III "a standard transfusion technique" was developed and much experience in using it was gained. This technique is described. Results among these three phases are compared with respect to difficult transfusions, maternal complications, fetal and neonatal mortality, cord blood findings, and pediatric follow-up results. Much progress in improving the results of intrauterine fetal blood transfusion was made. Results are discussed.

414. Wiesenhaan, P.F.: "Fetography," *American Journal of Obstetrics and Gynecology*, 113:819-822, July 15, 1972.

Fetography is defined as being "the roentgenologic study of the fetus after injection of small amounts of two radiopaque media." The procedure enables the physician to view the outline of the fetus and fetal swallowing. The method used, the results obtained with 76 fetography patients, and the possible complications are described. The four purposes of fetography are listed with the number of cases in this study for each indication placed in parentheses: "[1] to detect congenital malformations of the fetus in cases of hydramnios" (18); "[2] to judge the condition of the fetus in cases of severe rhesus antagonism prior to an intrauterine transfusion" (55); "[3] to differentiate between mono- and di-amniotic twins" (2); and "[4] to determine the fetal sex (in rare cases)" (1).

415. Wilkinson, Michael; Effer, Sidney B.; and Younglai, Edward V. with the technical assistance of Kamlesh Gupta: "Free Estriol in Human Pregnancy Plasma," *American Journal of Obstetrics and Gynecology*, 114:867-872, December 1, 1972.

Maternal plasma samples were obtained approximately weekly from a group of unmarried pregnant women between weeks 20 to 42 of pregnancy. Free estriol (E_3) was measured in the plasma samples by a described method of competitive protein binding. Results are presented with regard to the accuracy and precision of the method, its sensitivity, and the specificity of the method. Mean E_3 levels were found to rise steadily during the period of gestation studied. These results were similar to those found in other studies, and thus the described method is felt to be "of use in providing information for a continuous assessment of fetal well-being in the latter half of gestation."

416. Willerman, Lee: "Biosocial Influences on Human Development," *American Journal of Orthopsychiatry*, 42:452-462, April, 1972.

Using data from the Collaborative Study, the effects of biosocial influences on prenatal and postnatal development are studied. Data are presented on "(1) socioeconomic and race correlates of the sex ratio; (2) birthweight as a perinatal correlate of IQ; and (3) some efforts to accelerate intellectual functioning through biological and environmental influences.

417. Williamson, Alice P., and South, Mary Ann: "Effect of Systemic Maternal Virus Infections on the Fetus and Newborn," *Clinical Obstetrics and Gynecology*, 15: 1023-1030, December, 1972.

Discussed are the viruses which when contracted by the pregnant woman can cause infection in the fetus and neonate, and their effects. Included are the rubella virus, the cytomegalovirus, the herpesvirus simplex, the mumps virus, the coxsackievirus, the echoviruses, variola, varicella zoster, and others.

418. Willocks, James, and Dunsmore, Ian R.: "Assessment of Gestational Age and Prediction of Dysmaturity by Ultrasonic Fetal Cephalometry," *Journal of Obstetrics and Gynaecology of the British Commonwealth*, 78:804-808, September, 1971.

Fetal biparietal diameter was measured by ultrasound a total of 641 times in 387 obstetric patients. The relationship of these measurements to gestational age and birth weight was then statistically analyzed as described. "A standard growth curve was derived which can be used in the assessment of maturity. A chart has also been prepared to aid in the prediction of dysmaturity from an initial reading of the biparietal diameter. These diagrams can be used to interpret the significance of measurements but it is emphasized that serial readings give the best basis for decisions in the individual case."

419. Windle, William F.: *Physiology of the Fetus; Relation to Brain Damage in the Perinatal Period:* Springfield, Ill.: C.C. Thomas, 1971. 160 pp.

Human fetal physiology is examined in this volume with emphasis placed on the adverse conditions that can occur in fetal life, during birth, or in the immediate postnatal period. Individual chapters deal with the "Placenta," "Endocrine Functions," "Growth and Metabolism," "Blood," the "Heart," "Circulation," the "Central Nervous System," the "Peripheral Nervous System," the "Lungs and Respiration," the "Digestive System," and the "Excretory System." Subsequent chapters concentrate on the subjects of "Labor and Birth," "Asphyxia Neonatorum," and "Mental Retardation." References are listed after each chapter, and the final chapter consists of a "Chronological Bibliography" on the subject of books, review articles, and monographs published from 1885 through 1970.

420. Wolin, L.R., and Massopust, L.C., Jr.: "Behavioral Effects of Arrest of Cerebral Circulation in the Rhesus Monkey," *Experimental Neurology*, 34:323-330, February, 1972.

The literature is reviewed. A study is described in which a battery of psychological tests was administered to 12 rhesus monkeys, who had recovered from between four to 14 minutes of total cerebral arrest, in order to evaluate the "behavioral deficits which might indicate limited brain damage." The methods and tests used are described. Scores were compared to those of normal monkeys, and results are presented. Only two of the experimental monkeys showed definite evidence of brain damage as defined and as compared to the control group. "Where evidence of possible or definite brain damage occurred, the degree of deficit was positively related to the duration of arrest of cerebral blood flow."

421. Wong, Y.K.; Shuttleworth, G.R.; and Wood, B.S.B.: "Effect of Albumin Administration on Phototherapy for Neonatal Jaundice," *Archives of Disease in Childhood*, 47:241-245, April, 1972.

In this article two studies are described which were "designed to test the effect of albumin administration before phototherapy for non-haemolytic neonatal jaundice." In the first study 27 infants whose plasma bilirubin levels had risen above 15 mg./100 ml. were given phototherapy for 18 hours (I) while 23 infants whose levels had also risen to that degree were given albumin intravenously before the 18 hours of phototherapy was begun (II). Group II was found to have "higher and more prolonged jaundice" than Group I, but differences were not significant. In the second study eight infants received phototherapy alone for at least 48 hours (I), eight infants received the albumin followed by at least 48 hours of phototherapy (II), and eight infants received neither the albumin nor the phototherapy (III). Group I was found to have the shortest duration of jaundice and Group III had the longest duration. All differences were significant. The infants in Group II "had significantly greater albumin-binding capacity at the end of treatment." Results are interpreted.

422. World Health Organization. *The Prevention of Perinatal Morbidity and Mortality.* Geneva: W.H.O., 1972. 97 pp. (Public Health Papers, No. 42.)

This volume contains a report on a Seminar on the topic held at Tours in April, 1969. In the first chapter "epidemiological and statistical data" on perinatal mortality are presented. "Specific medical problems," including malformations, iso-immunization, obstetrical and neonatal infections, deviations in birth weight and fetal growth, perinatal hypoxia, and birth injury, are individually examined in Chapter 2. In Chapter 3 the reduction in perinatal morbidity and mortality through improved pre- and postnatal care is discussed. Programs of information for the public, the training of personnel, and research are the subjects of Chapter 4. "Conclusions" are outlined in Chapter 5. There are four "Annexes" containing definitions, recommendations, and proposals put forth by the Seminar, demographic data, instructions for preventing neonatal infection in the hospital, and information on the "organization of a special care unit for newborn infants." A bibliography is included.

423. Xanthou, Marietta: "Leucocyte Blood Picture in Ill Newborn Babies," *Archives of Disease in Childhood*, 47:741-746, October, 1972.

Blood leucocyte counts were measured during the first 28 days of life as explained in 35 described ill preterm and term infants. Results are presented concerning the changes seen in neutrophils, eosinophils, basophils, lymphocytes, and monocytes in these ill infants. Results are discussed. "The most important finding from this study has been (1) that there were no definite changes in white cell counts in ill babies in whom there was no evidence of bacterial infection, and (2) that there were marked changes, quantitative and/or qualitative, in the neutrophils of both term and preterm babies suffering from either proven or suspected infective illness. However, since these changes were found to be present in both definitely infected and possibly infected infants we cannot be certain that such quantitative and qualitative changes are specific for infective illness. None the less, no baby thought to be suffering from infective illness was found to have a normal leucocyte count."

424. Yancy, W.S.: "Approaches to Emotional Management of the Child With a Chronic Illness," *Clinical Pediatrics*, 11:64-67, February, 1972.

Statistics involving the incidence of children with chronic illness in the United States are reviewed, and three major goals around which "the care of children with chronic disease must be centered" are listed and discussed. These three are: (1) "Specifically treating the handicap of the disease itself," (2) "Preventing the disease process, the treatment regimen and the various people involved in the program from interfering with the development of the child," and (3) "Preventing the illness, the treatment regimen and the people involved from disrupting the family unit." The individualization of each case with respect to both the child and his parents is stressed as is the importance of the physician's understanding of the normal developmental process in order to anticipate and deal with delays in and deviations from this normal development. Brief case histories illustrate.

425. Yeh, S.Y.; Betyar, L.; and Hon, E.H.: "Computer Diagnosis of Fetal Heart Rate Patterns," *American Journal of Obstetrics and Gynecology*, 114:890-897, December 1, 1972.

A method for the rapid interpretation of fetal heart rate (FHR) and uterine contration (UC) patterns by means of the IBM graphic terminal and an IBM 360 computer is described. Results of analyzing 171 FHR/UC patterns are presented. "The accuracy of the computer diagnosis was 84.0 per cent, which was quite adequate for clinical application."

426. Yerushalmy, J.: "Infants With Low Birth Weight Born Before Their Mothers Started to Smoke Cigarettes," *American Journal of Obstetrics and Gynecology*, 112:277-284, January 15, 1972.

The literature on the relationship between smoking, low birth weight infants, and infant mortality is reviewed. In order to investigate the possibility that the incidence of low birth weight infants might be due to the smoker instead of the smoking, the incidence of low birth weight infants born to women who began to smoke at a time after the birth of their infants was determined. Detailed reproductive histories were taken by interview from the 3,422 white women and the 1,655 black women, having various smoking habits, who were included in the study. "It was found that women who subsequently became smokers had a high incidence of low-birth-weight infants also during the period before they started to smoke. It was concluded that the findings raise doubt and argue against the proposition that cigarette smoking acts as an exogenous factor which interferes with the intrauterine development of the fetus. Rather, the evidence appears to support the hypothesis that the higher incidence of low-birth-weight infants is due to the smoker, not the smoking."

427. Yeung, C.Y.: "Blood Sugar Changes in Neonatal Hyperbilirubinemia and Phenobarbitone Therapy," *Archives of Disease in Childhood*, 47:246-249, April, 1972.

A group of term neonates were alternately placed in either a control or a treatment group for the purpose of investigating "the effect of bilirubinaemia and phenobarbitone therapy on the blood sugar metabolism in newborn infants." The treatment group received phenobarbitone as described while the control group did not. Daily serum bilirubin and serial blood sugar tests were conducted. A statistically significant inverse correlation was found between the blood sugar and the serum bilirubin levels in the control group in the first four days of life. The administration of phenobarbitone was found to effectively lower the serum bilirubin levels and raise the blood sugar levels. Implications are discussed. "The therapeutic value of phenobarbitone in the treatment of neonatal hypoglycaemia will be rather limited because it takes two days before a significant rise of blood sugar could be effected. In jaundiced infants, however, phenobarbitone therapy may be useful not only in preventing further rise of the bilirubin level but also in raising the blood sugar, thus preventing brain damage by the combined effect of hyperbilirubinemia and hypoglycaemia."

428. Yogman, Michael W.; Speroff, Leon; Huttenlocher, Peter R.; and Kase, Nathan G.: "Child Development After Pregnancies Complicated by Low Urinary Estriol Excretion and Pre-eclampsia," *American Journal of Obstetrics and Gynecology*, 114: 1069-1077, December 15, 1972.

The growth and development of 16 children born to 16 mothers having pre-eclampsia were studied. Eight of the mothers also had "either chronically low or precipitately dropping estriol values (Group 1), while the other eight mothers had normal estriol levels during pregnancy (Group 2) and served as controls. Examination of the infants was conducted at between the ages of seven months to four years, with 15 of the 16 examined before age two. Methods are described. The obstetric histories of all the Group 1 mothers were poor, and the severity and the duration of the pre-ecalmpsia were also found to be greater in the Group 1 mothers. Birth weights of the infants in Group 1 were lower with four of the eight infants being small-for-dates. Three of these four small-for-dates infants were found at follow-up to have "major problems in development or function: microcephaly, seizure disorder, and developmental retardation with hyperactivity." "Neurological abnormalities on follow-up examination were confined to children whose mothers had chronically low rather than precipitately dropping estriol levels." All of the Group 2 children were found to be relatively normal at follow-up. Results are interpreted. "The data suggest that if infants are of appropriate gestational ages when precipitate drops in maternal estriol excretion occur the infants should be delivered immediately because they do well. However, infants delivered after chronically low maternal estriol values are frequently defective."

429. Yoshida, T.; Metcoff, J.; Morales, M.; Rosado, A.; Sosa, A.; Yoshida, P.; Urrusti, J.; Frenk, S.; and Velasco, L.: "Human Fetal Growth Retardation. II. Energy Metabolism in Leukocytes," *Pediatrics*, 50:559-567, October, 1972. (Series: For I see #396, III see #306.)

With a few described additions made to the infant-mother pairs presented in Part I of this series of articles, a study was conducted "to determine if there is a unique pattern for certain cell energy functions in leukocytes of mothers and their small for gestational age (IUM) infants at the time of birth." "Further, the study attempted to determine if these patterns of cell energy functions were similar to those found in infants with severe postnatal protein-calorie malnutrition." There were three groups of neonates and their mothers included in the study: 1) intrauterine growth retarded infants (IUM), 2) premature infants who were of an appropriate size for gestational age (AGA), and

3) full term newborns (FT). Methods are described, and results are presented with respect to the cell size of the leukocytes in the cord blood and in the maternal blood, the adenine nucleotide contents of the cord and maternal blood, the leukocyte pyruvic kinase activity in the cord and maternal blood and the leukocyte adenylate kinase activity in the cord and maternal blood. "On the whole, the altered pattern of energy metabolism in leukocytes of the IUM infants was similar to that found in young infants with severe postnatal protein-calorie malnutrition (previously studied), thus adding further support to the concept that fetal growth retardation is a manifestation of malnutrition in utero." Results are further interpreted.

430. Yow, Martha D., and Taber, Larry H.: "Cytomegalovirus Infections in the Pregnant Female and the Newborn Infant," *Clinical Obstetrics and Gynecology*, 15:993-1003, December, 1972.

Cytomegalovirus infection during pregnancy is discussed in relation to its incidence, clinical manifestations, immune response, lab diagnosis, relationship to gestational age and involvement in the neonate. Cytomegalovirus infection in the neonate is then considered with regard to its incidence, clinical manifestations, control and prevention, and treatment. Numerous pertinent studies are mentioned.

431. Zamenhof, S.; Grauel, L.; and van Marthens, E.: "Study of Possible Correlations Between Prenatal Brain Development and Placental Weight," *Biology of the Neonate*, 18:140-145, 1971.

Rabbit fetuses of between 20-30 days gestational age were removed by cesarean section and studied. A described "statistical method was utilized to determine if significant linear correlations exist between any of the following measured parameters: placental weight, body weight, cerebral weight, and cerebral DNA." "It was found that, on a statistical basis, an individual animal with a heavier term placenta is also likely to have a higher neonatal cerebral weight; the latter is also likely to have a higher number of neonatal cerebral cells (DNA)."

432. Zamenhof, Stephen; van Marthens, Edith; and Grauel, Ludmila: "Prenatal Cerebral Development: Effect of Restricted Diet, Reversal by Growth Hormone," *Science*, 174:954-955, November 26, 1971.

From day ten to day 20 of pregnancy rats (group R) were fed "a diet with one-third of the normal caloric value but with protein and vitamin content identical to that in the diet for the control group" (group C). Other pregnant rats were fed exactly as above but also received daily doses of bovine growth hormone as described (group R+GH), while a fourth group of pregnant rats were fed normally and also received the growth hormone (group C+GH). Results indicated "significant decreases in body weight, placental weight, cerebral weight, cerebral DNA, and cerebral protein of the offspring at birth" in the group R rats. "Treatment of the pregnant females with growth hormone (group R+GH) resulted in almost complete reversal of these effects; the increases were highly significant as compared to group R." Results are discussed with regard to the action of the growth hormone. It is suggested that the hormone, if it does not cross the placenta, mobilizes the nutrient reserves of the mother, and thus improves the supply to the fetus.

433. Zlatnik, Frank J.: "The Applicability of Labor Inhibition to the Problem of Prematurity," *American Journal of Obstetrics and Gynecology*, 113:704-706, July 1, 1972.

Discussed in this article are the reasons why labor was not inhibited in 160 infants of low birth weight who comprised a group of "nonstudy premature infants" in "a controlled study of the efficacy of intravenous ethanol in the inhibition of premature labor conducted at The New York Hospital-Cornell Medical Center." The principle reasons for not inhibiting labor in these cases in the order of occurrence were: 1) an estimated fetal weight $>$2,500 grams, 2) ruptured membranes, 3) imminent delivery, 4) multiple gestation, 5) third-trimester bleeding, 6) intrauterine growth retardation, 7) Rh immunization, and 8) pre-eclampsia. The problem of low birth weight infants is discussed.

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